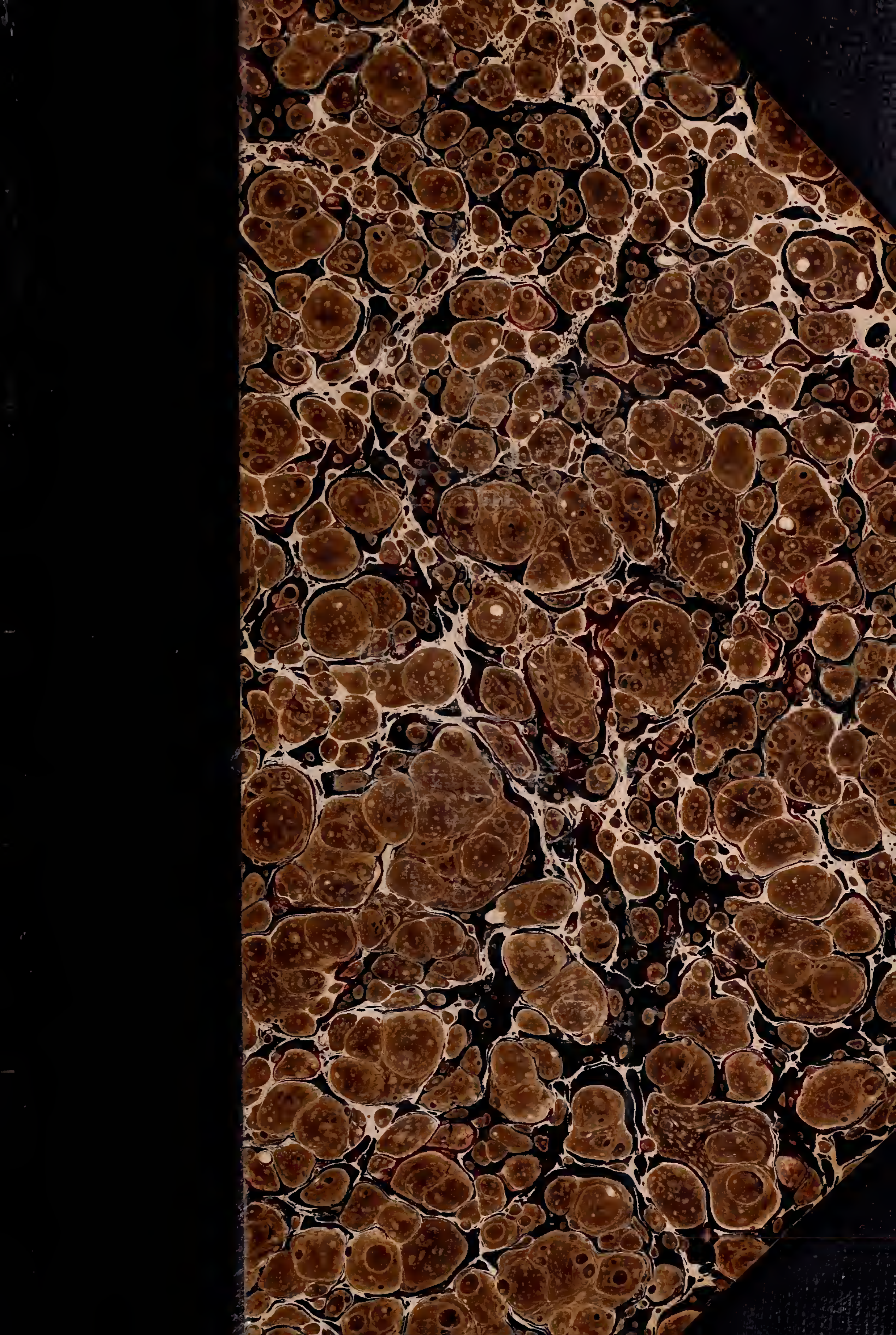


15814

EX·LIBRIS·COLL·MED·PHILAD·INSTIT·A·D·MDCCLXXXVII

NON SIBI SED TOTI

Class ______ No. ______

Presented by

H. H. Kynett, M.D.

Digitized by the Internet Archive
in 2014

https://archive.org/details/gaillardsmedical6718unse

Contents, Pages 7 & 9. Advertisers' Index, Page 29.

GAILLARD'S MEDICAL JOURNAL.

Scientia et Veritas Sine Timore.

Entered as second-class matter Published by the New York Medical Publishing Co. at the New York Post-Office

EDITORS.

GEORGE TUCKER HARRISON, M.A., M.D.
SIMON BARUCH, A.M., M.D.
CARTER S. COLE, M.D.
E. GAILLARD MASON, M.D.

COLLABORATORS.

T. GAILLARD THOMAS, M.D., New York.
J. HERBERT CLAIBORNE, Jr., M.D.
D. BRYSON DELAVAN, M.D., New York.
HUNTER McGUIRE, M.D., Richmond Va.
CLAUDIUS H. MASTIN, M.D., LL.D., Mobile, Ala.
P. BRYNBERG PORTER, A.M., M.D., New York.

VOLUME LXIX. No. 1. JULY, 1898. TERMS, $5.00 PER ANNUM

The Lines of Logic

are sufficiently plain to indicate the value of ...

Liquid Peptonoids

as a suitable substitute for fermentable milk foods when it becomes necessary to discontinue the latter in Chloroform Diarrhœa, etc.

The Light of Fact

has amply confirmed the truth of the following statements:

1st. Liquid Peptonoids is thoroughly pre-digested and its quick absorption is thus assured.
2nd. Its thoroughly sterile state prevents its septic fermentation.
3rd. Its slight stimulating action combats collapse.
4th. Liquid Peptonoids is thoroughly palatable and tolerable.

When a combination of aseptic food and antiseptic remedy is needed
Liquid Peptonoids
WITH CREOSOTE
will be found of paramount value.

A quartette of advantages induced from logic and deduced from fact.

THE ARLINGTON CHEMICAL CO. YONKERS N.Y.

JAN 30 189

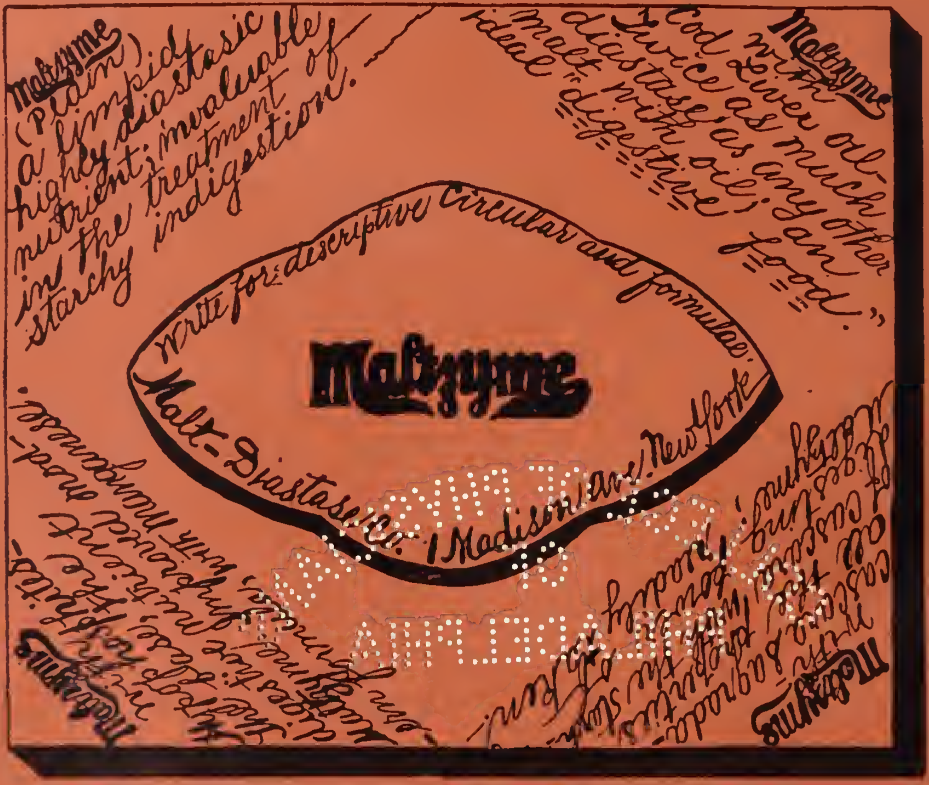
THE TREATMENT
OF
CHOLERAIC DIARRHÔEA.

PUBLISHED BY
LAMBERT PHARMACAL CO.
SAINT LOUIS.
1898.

A CLOTH BOUND COPY OF THIS COLLECTION OF
VALUABLE CLINICAL REPORTS
WILL BE SENT FREE TO ANY PHYSICIAN UPON REQUEST.

LAMBERT PHARMACAL COMPANY,
SAINT LOUIS.

SOLE MANUFACTURERS OF LISTERINE.


Maltzyme (Plain) a limpid highly diastasic nutrient; invaluable in the treatment of starchy indigestion.
Maltzyme with Cod Liver oil— Twice as much diastase as any other malt with oil; an ideal "digestive food."
Write for descriptive Circular and formulae.
Maltzyme
Malt-Diastase Co. 1 Madison Ave. New York
Maltzyme with Hypophosphites— The base, the digestive nutrient, Maltzyme, Improved modern formula, with manganese.
Maltzyme with Cascara Sagrada— all the properties of Cascara with the starch-digesting power of Maltzyme; readily taken.

GAILLARD'S MEDICAL JOURNAL.

VOL. LXIX. NEW YORK, JULY, 1898. No. 1.

IMPROVEMENT UPON SAYRE'S METHOD OF TREATING FRACTURED CLAVICLE.*

By J. W. HENSON, M.D., Richmond, Va.

Professor of Anatomy, University College of Medicine, and Surgeon to Virginia Hospital, Richmond, Va.

I crave your indulgence while I attempt, in as few words as possible, to explain to you an appliance which I hope you will find an improvement upon the present methods of securing position and immobility in a fractured clavicle.

Every intelligent doctor is aware that the indications in the treatment of this fracture, on account of the position and attachments of the bone, are to draw the distal fragments upward, backward and outward, through the medium of its connection to the shoulder. To accomplish this, Sayre's method is the best now in use.

In this method, the adhesive strip, which passes from the arm of the injured side horizontally around the chest, admirably performs its function and rarely slips much.

But while the strip, which passes from the sound shoulder around underneath the opposite elbow and back again, does its work well when first applied, yet it is almost certain to slip, and in warm weather does so very quickly, thus losing efficiency; is apt to roll up on the shoulder and hurt by becoming cord-like, and is altogether very uncomfortable. In the place of the latter strip, I have substituted the following arrangement with success:

Out of denim, unbleached jeans or other stout cloth, get a seamstress to fashion, for the sound shoulder, what, for the want of a better name, we will call a shoulder-cap, with two extensions or tails, one opposite the other. When held in the hand it bears a crude resemblance to a truncated dunce-cap. It must be so made as to fit simply the whole shoulder and upper part of the chest just below the axilla.

That this may be accomplished, an arm hole is necessary, which also serves the excellent purpose of preventing slipping.

There should be almost twice as much of the cap upon the shoulder as upon the chest below the exilla. The extensions or tails are one in front and one behind.

---

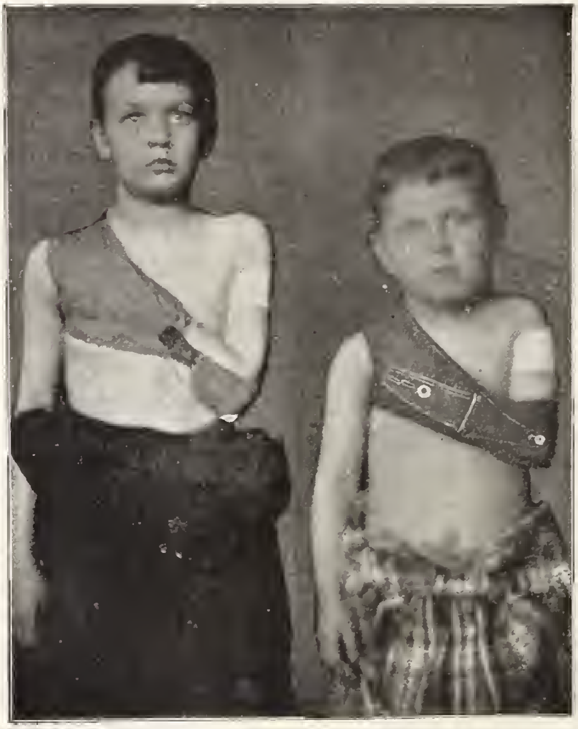
*Read before Richmond Academy of Medicine and Surgery, March 8, 1898.

15814

The posterior one is directed across the back along a line drawn from the shoulder supporting the cap obliquely downward toward the elbow. It should reach a little beyond the middle line, and may be pointed.

The anterior tail should have the same course across the front of the chest, reaching as far as the opposite nipple, and its end should vary in width from one and a half to two and a half inches according to the size of the patient.

Upon its under surface there is to be made a pocket, reaching from its tip upward and outward quite to the top of the shoulder, and just wide enough to accommodate the patient's hand. When tension is made upon both extensions at the same time, in the line of their direction, the cap should bear with equal pressure upon the shoulder and chest.



Improved Sling for Fractured Clavicle.—Front View.

Attach a buckle to the end of each extension.

From the same stout cloth cut a narrow oblong piece sufficiently wide to accommodate the elbow, and long enough to reach from the middle of the arm to the middle of the forearm when extended. To each end of this, which we will call an elbow piece, attach a tape of a width to match the buckles mentioned above.

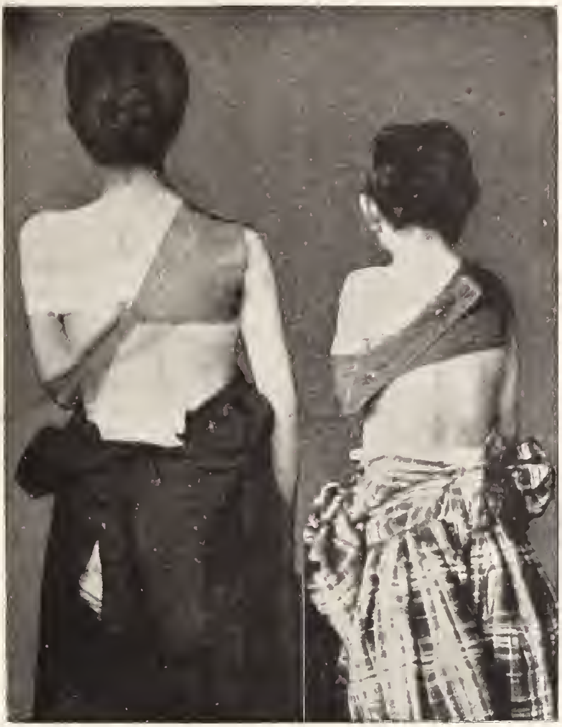
Now as to the application.

Apply the horizontal strip of adhesive plaster just as in Sayre's regular method. Then fit the shoulder-cap upon the sound shoulder.

Into the pocket underneath its front extension introduce the hand of the injured limb, after carrying the forearm up across the front of the chest.

Apply the elbow-piece to the already flexed elbow, and fasten its ends respectively to the anterior and posterior extensions of the shoulder-cap.

A hole should be made in the elbow-piece one and a half or two inches forward of its center for the reception of the olecranon process.



Improved Sling for Fractured Clavicle.—Rear View.

I have described in as simple a manner as possible the principle of the apparatus.

Under the direction of a doctor, a clever seamstress can make many useful modifications.

For instance, instead of the plain elbow-piece with hole for the olecranon, a pocket may be made to fit and securely grasp the elbow, so that, when the front connection is tightened, the latter (the elbow) will be more firmly held forward, and, through the principle of the first class of levers, the arm, with the side of the chest as a fulcrum, will draw the shoulder outward at the same time it is being held upward.

Examine, in the accompanying cuts, the smaller figure, which, by the way, is that of a child treated for a fractured clavicle by this means and with perfect success.

You will see that the mother has made, instead of a pocket for the elbow alone, a pocket or case for the elbow and forearm, which, when the apparatus is in position, is practically continuous with the pocket for the hand.

This gives additional support and security, and is to be advised in children to prevent removal of the hand.

Buttons may, of course, be used in the place of buckles for the fastenings. By properly adjusting the connections in this appliance, the desired position and support will, with certainty, be obtained and furthermore *maintained* with comfort.

A GENERAL METHOD FOR THE RADICAL CURE OF INGUINAL HERNIA WITHOUT BURIED SUTURES.[1]

By Dr. SIMON DUPLAY,
Professor of Clinical Surgery in the Medical Faculty of Paris; Surgeon to the Paris Hospitals,
AND Dr. MAURICE CAZIN,
Chief of the Surgical Clinic of the Medical Faculty of Paris.

I.

We described last year a new method of treating the sac for the radical cure of inguinal hernia (*The Medical Week*, 1896, p. 553), calling attention at that time to accidents which may arise from the employment of silk sutures buried in the tissues during the operation.

More or less remote ill-effects determined by the presence of these non-absorbable foreign bodies are extremely common, so much so that few surgeons probably could boast of having never met with them. In numerous instances—both as regards the radical cure of hernia and closing the abdomen after laparotomy—secondary interventions had to be resorted to in order to search for buried sutures in fistulous cicatrices.

The importance of the numerous accidents due to the use of aseptic silk has been shown in a communication to the Moscow Congress by Drs. Corvin and Vicol (Jassy), who reported no less than 13 cases of elimination of sutures in 119 cases of operation for hernia in which silk had been employed. When this elimination takes place several weeks or months after the operation, it becomes difficult to lay the blame on defective asepsis at the time of the operation itself; it can then only be attributed to the influence of some secondary infection—localized about the non-absorbed foreign body—through the blood or through some other channel.

II.

After the publication of our new method of treatment of the sac, several surgeons both in France and abroad, following the example of

---

[1] *La Semaine Medical.*

Drs. Paullet and Defontaine (Le Creusot), began to pay attention to these ill-effects from the use of silk for buried sutures.

Villar (Bordeaux), for example, published a few months after us a method for the radical cure of inguinal hernia, to which he again called attention at the last French Congress of Surgery (*The Medical Week*, 1897, p. 522). In his method the abdominal wall is closed by temporary suture of the transversus and internal obliquus to Poupart's ligament and of the fascia of the external obliquus, which had been divided at the beginning of the operation.

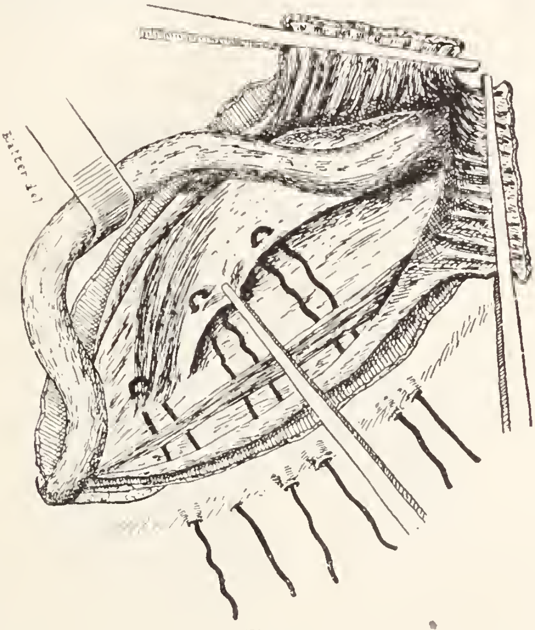


Fig. 1.

Prof. Jonnesco (Bucharest) has described a similar method which enables him, *without tieing the sac*, to make exclusive use of temporary stitches for closing the abdomen and obliterating the inguinal canal, all the sutures being inserted in front of the spermatic cord, which thus becomes subperitonæal (*The Medical Week*, 1897, p. 430).

Drs. L. Gigli and G. Baroni,[2] assistants to Professor Del Greco (Florence), had also been struck with the inconveniences of buried sutures, and have recently published an interesting monograph on the subject. They endeavored to employ Bassini's method of operation with removable deep sutures; this they did, with Prof. Del Greco, by using sutures similar to the twisted ones employed by some surgeons for closing the abdomen after laparotomy.

We have not ourselves tried this method of reconstruction of the posterior wall of the inguinal canal with temporary stitches, although the authors referred to have already applied it with success in a certain number of cases. We can therefore pass no judgment upon it; but the presence of the spermatic cord, which remains entangled within the superficial loops of the deep sutures, if we understand the description correctly, is liable, we believe, to lead to compression if the stitches should possibly be drawn too tight.

---

[2] Gigli and Baroni. Suture profonde amovibili; cura radicale delle ernie inguinali, metodo Bassini, senza fili perduti. (*Settimana Med. dello Sperimentale*, October 16, 1897.)

Lastly, Dr. Faure, like ourselves, has attempted the radical cure of inguinal hernia without buried sutures, but he contents himself with drawing together the pillars of the canal. At the last French Congress of Surgery he described a method in which, following our own treatment of the sac, he sutures the two lips of the superficial orifice of the inguinal canal by means of a double continuous suture passed through the two peritonæal bands, formed by longitudinal division of the sac (*The Medical Week*, 1897, p. 522). This is simply an application of the manœuver which we had already recommended, in a monograph published in the *Archives Generales de Medecine*, for the reconstruction of the posterior wall of the inguinal canal, without the employment of buried sutures. We have not, however, applied it in practice, because it is suitable only for cases of hernia with long sacs.

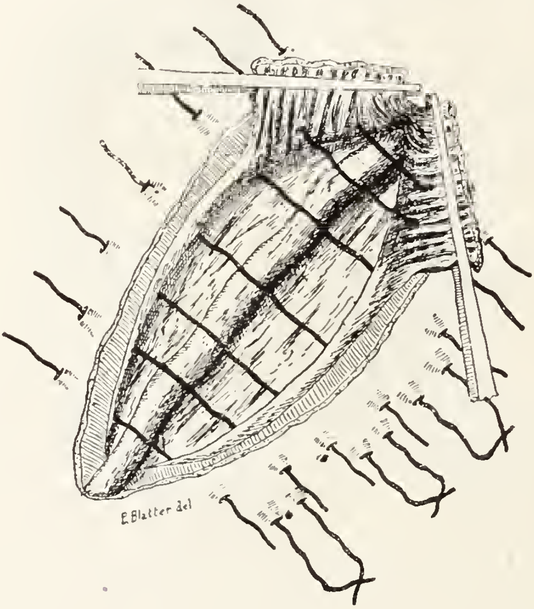


Fig. 2.

III.

The technique described by us last year was justly criticized as being restricted, in practice, to a limited number of cases; we were compelled, in the numerous cases in which the posterior wall is lacking, after treating the sac according to our own method, to have recourse to buried sutures when we employed Bassini's.

The method which we at present use and which we shall now pass on to describe, has already been tested in about twenty cases since the end of September. It is applicable to all cases of inguinal hernia without exception, and enables one, with temporary sutures alone, to realize all the known methods, including Bassini's.

Having incised the skin and the soft parts exactly over the inguinal canal, the fascia of the external obliquus is exposed and the outer opening of the inguinal canal well freed from all its connections; we then slit the anterior wall of the canal for 3 or 4 centimeters—the usual incision—between two pairs of Kocher's forceps, which are placed on the two lips of the incision and are left *in situ* during the entire operation.

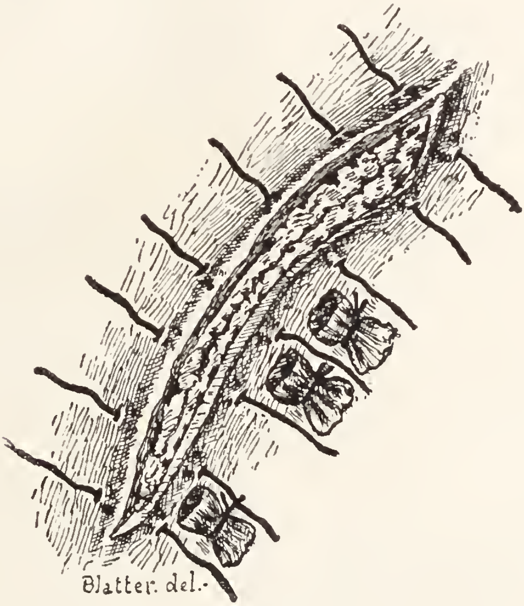


Fig. 3.

The sac is dissected out and, whenever possible, it is knotted several times upon itself in the manner previously described, a procedure the excellence of which has been brought out by later experience (*The Medical Week*, 1896, p. 553, and 1897, p. 416). To knot the sac in this way, it has to be pulled out forcibly by an assistant; when it is released, the knot settles about 2 or 3 centimeters above the upper end of the incision in the anterior wall of the inguinal canal; this is a point of importance for the firmness of the wall, the fibrous plug into which the knot becomes transformed consolidating the peritonæal cicatrix.

The spermatic cord is carefully isolated and is then pulled inwards and kept there by means of a hook; the way is then clear for the restoration of the posterior wall of the inguinal canal after Bassini's method.

In order to do this, we first place a pair of Kocher's forceps on each of the two flaps which are to be brought together, viz., on the posterior lip of Poupart's ligament and on the conjoined tendon, so as to be able to approximate the various tissues to the needle, which is to go through them.

First a silver wire of medium thickness is passed through the skin, 2 centimeters at least below the edge of the lower lip of the incision; it passes obliquely through the underlying soft parts, then through Poupart's ligament, across the base of the wound through the whole thickness of the muscular tissues, which can be raised above the point of the needle by the forceps placed upon the conjoined tendon; with this manœuver it is generally possible to send the needle through the muscular layer, 12 or 15 millimeters above its lower edge. If Reverdin's needle is employed, it is well to pass it through twice in succession, so as to take up a sufficiently large quantity of tissue out of the flap limited by the conjoined tendon.

The same wire is then curved in U-shape, so as to take in about 1 centimeter of the tissues; it is then carried, in the opposite direction, successively through the different layers which it had already gone through once, and it finally issues through the skin, 2 centimeters below the lower lip of the cutaneous incision, the point of exit being about 8 or 10 millimeters away from the point of entrance. A roll of aseptic gauze is now placed between the skin and the wires; it is easy to understand that their two ends can be twisted together and that a gentle traction will be sufficient to insure perfect coaptation of the deeper planes, which are destined to constitute the new posterior wall of the inguinal canal. Two or three U-shaped wires arranged in the same manner are generally sufficient to insure this reconstitution (Fig. 1).

It will be well, in order to make sure, at the last moment, that the coaptation secured by twisting the deep wires is perfect, not to complete this twisting before placing the sutures required for the reconstitution of the anterior wall of the inguinal canal, and, at the same time, for the closure of the cutaneous incision.

When the spermatic cord has been put back in its place, five or six silver wires are passed through the cutaneous incision, comprising successively, from below upwards, the pillars of the superficial orifice of the inguinal canal, and the two lips of the anterior wall of the canal, which was slit early in the operation (Fig. 2).

The deep wires are now twisted, taking care to place between them and the skin rolls of aseptic gauze, ascertaining all along with the finger that the coaptation of the two lips of the reconstituted posterior wall is perfect, and twisting the loops of wire with a pair of forceps until this result has been secured (Fig. 3). The spermatic cord lies above these deep stitches, and cannot therefore be compressed when they are twisted.

After making sure that the reconstitution of the posterior wall of the inguinal canal has been satisfactorily obtained, all that has to be done is to tighten the superficial sutures, which will at once reconstitute the anterior wall of the canal, suture the pillars and close up the cutaneous incision.

We may add that we are always careful, in applying the superficial stitches, to pass the needle through either lip of the incision of the anterior wall, from 1½ to 2 centimeters from the free edges, in view of reducing the inguinal canal to dimensions as small as possible. When these wires are drawn tight, the two halves of the anterior wall are made to dovetail, as in Dr. Lucas-Championnière's method.

A few very fine silver wire sutures are often necessary, in order to bring the lips of the cutaneous incision well together at the end of the operation.

This *modus operandi* enables us, therefore, to realize Bassini's operation as perfectly as possible.

The superficial sutures are removed after seven or eight days have elapsed; the deep wires are left in for from twelve to fifteen days; we were able in certain cases to leave them in for eighteen, and even twenty, days without any irritation to the skin.

IV.

Such is the method which we have finally adopted, and the immediate results obtained with it have so far been absolutely perfect. We are evidently not in a position to speak of the distant results, our operations being all of recent date; but we are justified in hoping that they will not be inferior to those obtained by Bassini's method with buried sutures.

It is hardly necessary to repeat that our system of temporary sutures, arranged in the manner described, will enable the surgeon to perform every other variety of operation for the radical cure of hernia with as much ease as Bassini's operation, with the additional advantage that the spermatic cord will never be exposed to the risk of compression, the deep wires being placed behind it and the superficial ones on an anterior plane.

We shall not compare our method with that which many surgeons have adopted in order to obviate the risks of silk sutures, viz., exclusive use of catgut in the operation for the radical cure of hernia. Catgut, as is well known, is absorbed much too rapidly and one can never feel quite safe as to the firmness of any union obtained by it.

Other absorbable threads have been proposed as advantageous substitutes for catgut, in particular those prepared with the tendons of kangaroo tails. Dr. H. Marcy (Boston) maintains that these sutures are very resistant and that they can lie in the tissues, unabsorbed, for three whole months, if properly impregnated with chromic acid (*The Medical Week*, 1897, p. 447). One of us has had occasion to employ kangaroo tendons for superficial sutures; they were absorbed already by the end of a fortnight. Their resistance therefore appears to be barely geater than that of catgut.

Be this at it may, it is as well for the present, we think, to rest content, for the radical cure of hernia, with a practical method which can be realized with the ordinary appliances at our disposal, and which gives us results fully as perfect as those to be obtained with any method in which buried sutures are employed, and this without the slightest postoperative risk.

MILITARY SURGERY.

THE EVOLUTION OF THE DUM-DUM BULLET.[1]

By Surgeon-Major-General J. B. HAMILTON, A.M.S.

There seems to be so much misunderstanding on the subject of "expanding bullets" as distinguished from "explosive bullets," that perhaps a short description of the new so-called "dum-dum" bullet will be interesting to the profession. I propose briefly to review what I may call the evolution of the present projectile, and show the various steps that led to its adoption.

Everyone is familiar with the old spherical musket bullet, the projectile that prevailed from the invention of gunpowder up to the period of the Crimean war. With it Marlborough, Napoleon and Wellington fought their battles, and its only variation was the "belted bullet" used by rifle regiments, which was merely the ordinary spherical bullet, with a zone or belt raised round one circumference to enable it to fit into the grooves of the rifle.

Shortly before the Crimean war the conical bullet was introduced. It was shaped like a sugarloaf, "and was a distinct advance on the spherical form, as it gave greater range and penetration." The "Minié" was the first outcome of this new invention, followed by the "Enfield," a muzzle-loading rifle of considerable power throwing a conical bullet, solid in front, with a hollow in the base, which caused the lead to expand and take the grooving of the rifle. So far the bullets were solid, and caused much the same class of wound as the old spherical ball.

When the Prussians adopted the needle gun, with which they so conspicuously defeated the Austrians, the English Government was forced into arming its troops with a breech-loader, and adopted the Snider principle of breech action, which had this great advantage, that it was feasible to convert the Enfields in stock into breechloaders. With the introduction of the Snider changes were made in the bullet; a hollow, filled by a plug of wood or clay, was introduced into the front part of the bullet, and the base was also hollowed and plugged, a diaphragm of solid lead being left in the center. This was a most deadly projectile, the plug in front expanding the bullet on impact and causing terrible injuries to soft parts and bones. The next step was to form a hollow in the front, over which the lead was "drawn," leaving a space filled with air; then came a solid portion of lead, and finally a hollow in the base plugged with clay. This was a more deadly bullet than the previous one, and its "smashing" powers were so great that it was adopted for sporting purposes. On soft-bodied animals, such as tigers and panthers, its effects were wonderful, the biggest tiger often dropping dead to a single shot when well placed. This form of Snider bullet, though called "expanding," was really explosive, its bursting power being probably due to the air it contained being greatly compressed on striking, acting like a small charge of powder exploded by the impact.

---

[1] *The British Medical Journal.*

The True Explosive Bullet.

This bullet was far more deadly to man and animals than anything that had before been invented, excepting, of course, "explosive" bullets, which I shall now briefly describe. Speaking generally, there were two forms of "explosive bullets" used by sportsmen (I speak in the past tense, as these bullets are now practically abandoned): one the bullet cast with a cavity in the apex, extending about two-thirds of its length, the other a bullet cast in two parts and "swaged" together in a machine. The first form was very simple, the cavity being merely filled with detonating powder, generally a mixture of chlorate of potash and sulphuret of antimony in equal parts, and closed with beeswax. This bullet used generally to burst after it had penetrated some distance into the animal's body and inflicted very deadly wounds, but frequently it either failed to explode or burst on impact, causing a large skin wound, but doing little serious damage at the moment; that is to say, it did not "stop" the charge of the tiger, though he might subsequently die of the wound. The second form was a most terrible projectile, and in my experience no soft-bodied animal fairly struck by it could do further mischief.

This bullet was cast in two parts, the base something like a thimble with a flat top, the apex conical, with a hollow leading down from the point. The base, or thimble-shaped end, was nearly filled with ordinary powder, then a piece of thin cloth was laid over the top, the apex was fitted in, and the two parts were then "swaged" together in a machine. There was thus formed a conical bullet, generally a 12 bore (that is, a bore that took a spherical bullet of 12 to the pound), with a charge of powder in the base, a thin diaphragm, and a hollow leading to it from the point. Down this hollow detonating powder was poured, and the hole closed with wax. This was a typical form of explosive bullet and most deadly in its effects. I shot a great deal of heavy game with it in India, and never lost an animal I knew I had struck. I have seen a stag 15 hands high hit behind the shoulder collapse on the spot as if its legs had turned into jelly. On one occasion I saved my life by killing a charging bear in dense jungle, dropping her within a few feet of me. In this case I observed smoke issuing not only from the wound, but also from the mouth and nostrils, and on opening the chest found the lungs and heart torn to pieces.

This was the true explosive bullet, and it was against it and similar inventions that the Geneva Convention legislated.

As I pointed out before, the Snider bullet, though not strictly an "explosive" bullet, became in its latter form equivalent to one, but it was never forbidden in warfare.

The next advance was the Martini-Henry rifle, with a hardened projectile of 0.450 diameter—the Snider was 0.577—with greatly increased velocity and penetration and a much lower trajectory. This bullet was complained of as not having stopping power—that is, it passed through the limbs or body without causing immediate collapse unless some vital part or important bone was struck. In European warfare this was of comparatively little consequence, as civilized man is much more susceptible to injury than savages. As a rule, when a "white man" is wounded he has had enough, and is quite ready to drop out of the ranks and go to the rear; but the savage, like the tiger, is not so impressionable, and will go on fighting even when desperately wounded. The Martini-Henry was in use for many years, but was at length superseded by the Lee-Metford, the present military rifle of this country. This rifle has a bore of only 0.3 inch, the bullet being of lead surrounded by a jacket or covering of nickel, and, fired with smokeless powder, gives a very high velocity with a very low trajectory and immense penetration. As an instance of its extraordinary power I will detail an experiment I saw carried out at Enfield by Mr. Rigby, the then superintendent of the Government Small Arms Factory.

A strong wooden box, about 6 feet long and 1 foot wide and 1 foot deep, was constructed of 1 inch planks, screwed, and bound with hoops of iron. A sheet of India rubber about a quarter of an inch thick was substituted for wood at one end. The box was filled with water, and a Lee-Metford bullet fired into it through the India rubber. This was done to prevent the projectile from altering its shape. So tremendous was the energy that the bullet, in forcing its way through the water, displaced it so violently that it tore the box open, bursting the planks asunder and rending out the screws and nails.

It was also found that on firing into a dead animal the bones were frequently comminuted to an extraordinary degree, though on other occasions the bullet merely drilled a hole in passing through. This was the experience of our troops in India, and while in some cases terrible wounds were inflicted, in others little or no damage was done. There is the well-known instance of the "Chitrallee" who walked into one of our field hospitals to have his wounds dressed, when it was found that no fewer than five Lee-Metford bullets had passed through various parts of his body.

The men felt that their weapons failed in "stopping" power, and that though they might hold straight and hit their adversary fairly, he was still able to charge home and perhaps cut them down.

Some experiments were then made at the Dum-Dum Ordnance Factory near Calcutta, when it was found that by leaving a small portion of the lead at the apex of the projectile uncovered, the bullet "set up" or mushroomed soon after impact and inflicted sufficient shock to stop the most determined Ghazi. This was effected either by removing part of the envelope or by putting merely a wrapper of nickel as far up the bullet as was necessary to enable it to take the rifling, leaving the lead bare at the conical portion.

In the last Soudan fight this was effected by filing off a small portion of the point or nose of the bullet, and leaving it flat and bare of envelope.

In a similar way these bullets "set up" or mushroomed after impact, and gave the necessary stopping power.

It will be seen from the above that the Lee-Metford is in no sense an "explosive bullet," but merely a partially expanding one, and even now is not for a moment to be compared in its destructive powers to the Snider bullet, which was never objected to by the Geneva Convention or the Great Powers.

ACTION OF THE LEE-METFORD AT SHORT RANGES.[1]

By Surgeon-Major C. M. THOMPSON, M. B., I.M.S.,
in charge of 44th Native Field Hospital, 3rd Brigade Tirah Expedition.

In the remarks in the *British Medical Journal* of March 19, writing of injuries caused by the Martini-Henry and Snider rifles as compared with the new Lee-Metford, it is said, "The more severe injuries produced by the latter, if indeed they prove to be more severe, depend solely on their much greater muzzle velocity."

I think it very questionable if wounds inflicted by the Lee-Metford and dum-dum bullet at short range are as severe as wounds inflicted by either the Martini-Henry or Snider rifles at similar range; my experience during the late Tirah expedition certainly goes to prove that they are not.

During the retirement from the Saran-Sar on November 9 a party of the 15th Sikhs, consisting of a British officer, a jemadar, and four sepoys, was fired into from a range of about 300 yards; of the whole party the British officer only was not wounded. The wounds were undoubtedly inflicted by the Lee-Metford and dum-dum bullet. The jemadar was struck on the outside of the right thigh; the bullet passed through the muscles on the outside, but did not touch the bone. One sepoy was struck on the left side of the chest; the bullet entered a couple of inches above the nipple, and emerged between the scapula and the spinal column on the same level; another was struck in the fleshy part of the right buttock, the bullet passed through the muscles, but no bone was hit; another sepoy was struck in the lower part of the abdomen, and the hole of exit was through the left side of the sacrum. One sepoy was killed on the spot, and I had no opportunity of examining his body. In the case of the jemadar, and the sepoys wounded in the buttock and chest, the wounds of entrance and exit were all very small, about a quarter of an inch in diameter, or less; there was no sign of setting up of the bullet. All these cases recovered, and were sent down to the base hospital in a few days convalescent.

The wound of entrance was also small in the case of the sepoy hit in the abdomen, but in his case the wound of exit, through the sacrum, was about the size of half-a-crown.[2] Serious injury must have been inflicted on the abdominal or pelvic organs, as he only lived a few hours; the pelvic bones were smashed, but the fragments were not much displaced, and there was very little comminution; the bullet appears to have drilled a hole in the bone with radiating fractures.

---

[1] *British Medical Journal.*

[2] The diameter of this coin is 3.2 cm.

These cases and others which came under my notice during the campaign lead me to believe that the dum-dum bullet at close range certainly does not set up, if only soft tissues are traversed; and that even if a massive bone be struck the resulting injury, though very serious, will compare not unfavorably as regards the possibility of recovery with similar wounds caused by the Martini-Henry or Snider rifles.

I have seen a good many penetrating wounds of the chest inflicted by Martini and Snider rifles, but I have never seen one recovery when the bullet passed through the lung. In all such cases that I have seen the patient either died within a few hours from shock or hæmorrhage, or subsequently from pneumonia or other complications. I attribute the recovery of the sepoy wounded in the chest, whose case I have quoted, to the small calibre of the bullet and to the fact that there was no setting up. The small wound in the skin caused by the small bullet can be very effectually closed by the natural elasticity of the tissue and deep septic infection of the bullet track thereby prevented. The jemadar suffered so little from shock that he was able to walk into Camp Maidan, a distance of two miles; the sepoy wounded in the buttock had lost a good deal of blood before he was brought to hospital, and was suffering from shock, partly the result of that loss; the sepoy wounded in the chest was in a very precarious condition for some hours, suffering from profound shock.

I am inclined to believe that the high muzzle velocity of the Lee-Metford, associated with a bullet of small calibre, tends rather to drill a hole in even a massive bone than to smash it up into small fragments; and that at short range the dum-dum bullet does not set up, even if it impinges on a large bone.

THE EFFECTS OF THE DUM-DUM BULLET FROM A SURGICAL POINT OF VIEW.

By Surgeon-Colonel W. F. STEVENSON, A.M.S.,
Professor of Military Surgery. Army Medical School, Netley.

Professor Bruns is reported to have stated at the late meeting of the German Chirurgical Society, that the use of the dum-dum bullet in warfare is "brutally inhuman;" and the inferences to be drawn from certain questions lately put by members of the House of Commons to the Secretary of State for War are sure to conjure up before the minds of hysterical persons, who have no means of knowing the facts of the case, the notion that the English government has selected for use in the English army a small-arm projectile, which, in the spirit, if not in the letter, contravenes the agreement come to at the Congress of St. Petersburg, in 1868, not to use explosive shells of less than 400 grammes in weight. As a matter of fact, there is no doubt that the effects of the dum-dum bullet have been exaggerated. This enhanced idea regarding the damage caused in human tissues by this missile is probably the result of reports from India, which were grounded on experiments made there by firing it through animals of greater resisting power than man, and on the natural prejudice in favor of the home-made article. Experiments on animals give only a general idea of the effects of a projectile; they supply no reliable evidence of the injuries it will produce in man or in other animals than those experimented on, inasmuch as these depend altogether, other things being equal, on the resistance offered by the tissues to its passage; the greater the resistance the greater will be the damage done by it.

All war may be said to be "inhuman;" but if the inhumanity of war is to be judged by the greater or less severity of the wounds produced by the weapons and projectiles used in it, then war is more humane now, dum-dum bullet notwithstanding, than it was when Sniders or even Martini-Henrys were employed. The object to be attained by leaving the point of the dum-dum bullet uncovered by the cupro-nickel envelope was to increase its stopping power on traversing soft parts only, in consequence of its breaking up without contact with bone; but this does not nearly always occur, and then the wounds it produces in soft parts are precisely similar to those of the service Lee-Metford or of the French Lebel bullets. When it does break up it causes a severely lacerated wound of the soft parts, but one not nearly so severe as those resulting from the ordinary small-bore or any of the older rifle bullets when they meet bone in their passage. The fracture of the shafts of long bones and of their cancellous ends resulting from the dum-dum bullet are comparable in every way with those produced by the service Lee-Metford, and are no more difficult of cure than the latter notwithstanding the particles of the core and of the envelope are liable to remain in the tissues. The Snider bullet was probably the most destructive small-arm projectile ever used in an army, but the inhumanity of its employment in war was never suggested. When traveling at the same velocity it produced more extensive fractures of bones than any small-bore bullet, dum-dum or other; it comminuted the bone into larger fragments, and displaced these to a greater extent; the fissuring of the bone did not extend so far from the seat of fracture as it does in the case of the small-bore missile, but in the former case the periosteum was also greatly lacerated, while in the latter it, to a great extent, remains untorn over the fissures, and preserves the larger fragments in their normal positions, this being, of course, favorable towards recovery. Besides increased accuracy of shooting, the only advantage a small-bore rifle possesses over the older weapons is that it preserves a higher rate of "remaining velocity" at all ranges than they do, and, as a result, will cause a greater number of severe injuries. But at equal velocities the Snider and Martini-Henry bullets produce greater damage to bony structures than do the Lee-Metford or dum-dum bullets, while the latter, if it deforms, causes a more lacerated wound of the soft parts.

I have made experiments with dum-dum bullets; I have seen our men who were hit with them on the Indian frontier, and I have received numerous letters from medical officers who saw and treated the injuries produced by them in the Tirah campaign, and I am convinced that an exaggerated idea of their effects exists. The experiments referred to proved that they often pass through the soft parts without changing their shape or breaking up; the fractures resulting from them in the wounded from India are no more severe—are, indeed, perhaps less so—than those caused by the Afridi Snider and Martini-Henry missiles; and the information obtained from some of the medical officers in the late expeditions in India goes to show that they often produce clean, punched out holes in long bones, a class of injury favorable to recovery and seldom seen to result from Snider bullets.

That the dum-dum bullet, when it breaks up, produces a more lacerated track through soft parts is no doubt true; for this it was invented, because the "stopping power" of the Lee-Metford was found to be *nil* when bone was not implicated, and something had to be done to render the small-bore weapon effective against the rushes of Asiatic fanatics. But that the fractures of bones caused by it are more severe, or more lethal in their results, I very much doubt. The carcasses of the animals experimented on did not show it on dissection; the wounded men now at Netley afford no evidence of it, nor do the statements of some medical officers in India bear out this view.

It was with reference to fractures that Bruns raised this question of the "brutal inhumanity" of the dum-dum bullet; but if the suggestion that it produces no more damage to bony structures than the service Lee-Metford does be correct, then it follows that its use in warfare is no more "inhuman" than is the employment of any of the small-bore weapons with which the armies of all the civilized nations of the world are now armed, for they all produce injuries of about the same degree of severity; and with regard to this latter class of small arm Bruns himself has stated that "the new arm of small calibre is not only the best, but it is also the most humane, in that it lessens the horrors of war as far as possible."

In conclusion, it may be well to point out that the articles of the Geneva Convention do not refer at all to the use of small-arm shells in warfare, but to quite different matters; it was, as already mentioned, at a congress of the representatives of all the European powers, held in St. Petersburg in 1868, that a minimum weight of 400 grammes, or about 14 ozs., for explosive projectiles was agreed upon.

The Effects of the Dum-Dum Bullet from a Surgical Point of View.

A correspondent writes the *British Medical Journal* concerning Prof. von Bruns' paper as follows: It appears that Professor von Bruns' communication on bullet wounds in the German Surgeons' Congress has been misunderstood. His paper has not yet been published, but I was present when it was delivered, and heard every word. And he had besides the goodness to show me privately his photographs and skiagraphs.

Von Bruns did not employ, so far as I understood, the words "inhuman" or "brutally inhuman," and certainly not in reference to the dum-dum bullet.

Unmenschlich is the German word for inhuman; *inhumane Kriegsgeschosse*, the term he used, signifies "inhuman projectiles."

Moreover, von Bruns expressly guarded himself from condemning the dum-dum bullet in wars with barbarous races; his aim—a most laudable one in my estimation—was to arouse public opinion against the introduction into European warfare of bullets so far denuded of their mantle as to be virtually explosive.

Von Bruns' experiments were made with bullets which he exhibited, stripped of their mantle for about one centimeter from the tip, such as are used by sportsmen from the Mauser rifle in killing big game, and the illustrations he gave of their effects were most convincing, and justified his thesis. Even the soft parts, when struck by them, were blown away as if from the mouth of a gun, while the skin was torn with long slashes, evidencing internal expansion of a most violent kind.

The dum-dum bullet, on the contrary, has its mantle removed for only two or three millimeters from its tip, and its explosive or expanding action must be much less marked.

But it is certain that a further extension of the dum-dum system would produce bullets as explosive as the hollow expanding bullets already condemned in warfare, though retained in killing large game.

SHELL WOUNDS IN THE BOMBARDMENT OF SAN JUAN DE PORTO RICO.

The casualties in the bombardment of San Juan amounted to one man killed and five wounded. The action lasted nearly three hours, the following vessels participating: The cruisers New York, Detroit and Montgomery; the battleships Iowa and Indiana; the monitors Terror and Amphitrite, and the torpedo boat Porter. Only two shells from the enemy's batteries struck the ships, one shell striking the New York and one the Iowa. The shell which injured the New York was a cast-iron eight-inch one. It struck a stanchion and burst, the fragments flying in every direction. A correspondent writes to the *Medical Record* that one fragment struck a man just behind one ear and emerged at the other side of his head. He died almost instantly. Another fragment struck another man in the lower third of the thigh. The missile entered posteriorly and emerged anteriorly. The femur was comminuted. The fragments were resected and the bone ends wired together by the surgeons on board the New York. The same man received a flesh wound in the calf of the other leg from another fragment of the same shell. The third man wounded by this shell received a flesh wound only. The shell which struck the Iowa entered the superstructure and burst. A piece of this shell wounded a marine in the right elbow from behind. The external condyle of the humerus, the head of the radius, and part of the ulna were shattered and carried away. Efforts are being made to save the arm. Another man was wounded by a splinter from one of the steel girders of the superstructure, which was detached by the shell. He received a lacerated and contused wound of the back, which laid bare the ribs, but did not injure them or the deeper structures. Another man was wounded in the foot, but with no bone involvement. All the wounds are doing well and are aseptic seven days after the receipt of the injuries.

BULLETS IN THE BRAIN AND THE ROENTGEN RAYS.

Von Bergmann (*Berl. Klin. Woch.*, May 2, 1898) refers to 32 cases of bullet wounds of the brain which he had observed, and in which the bullet has been left undisturbed. Of these, 8 were severe cases, and the patients rapidly died. Of the remaining 24, 19 recovered, and these had remained well. Of the other 5, 2 developed an abscess of the frontal lobe, and both subsequently died, although the abscess was opened; 2 others died apparently from a suppurative meningitis, and the fifth had not been heard of. The patients who recovered either showed no symptoms or were unconscious for a short time, or had a local paralysis or spasm. It is possible that in the first named group of cases the bullet did not penetrate the brain substance. Thus it becomes important, as Eulenberg has shown, to determine the situation of these bullets by the Roentgen rays. The author gives details of 2 cases examined in this way. Case 1 occurred in a woman, aged 28, who shot herself in the head when cleaning a loaded revolver. There was severe pain in the head and vomiting, but no loss of consciousness. The site of entry of the bullet was on the nasal side of the left upper eyelid. There was no paralysis. The wound was healed in the second week, and the patient subsequently recovered from an exophthalmos and choked discs. The situation of the bullet was found by the Roentgen radiography to be in the white matter of the occipital lobe.

Case 2 was that of a man, aged 25, who was wounded by a revolver shot in the right temporal region three years ago. He was unconscious for three days, and had a left hemiplegia and partial anæsthesia. His sight was also impaired and the hearing in the left ear. Very considerable recovery followed. Within the last six months, however, there had been severe attacks of pain in the head, chiefly limited to the right side. Here the situation of the bullet was at the junction of the anterior two-thirds and posterior one-third of the hinder limb of the internal capsule, and this was confirmed by the Roentgen rays. The patient wished to have the bullet removed. During a stay of three weeks in the hospital there was no return of the pain, and the patient was eventually dissuaded from an almost certainly fatal operation.

Von Bergmann says that both cases supply evidence in favor of leaving these bullets alone. The treatment should consist in not searching for them, and in a most rigid protection of the wound against infection. When the bullet lies in or near the bone without penetrating the brain, the treatment described may not be suitable, and the Roentgen radiography should determine the situation, and hence the treatment. The author refers to a case in which the bullet had not even penetrated the skull, but lay outside it.

* * *

SELECTED ARTICLES.

RECURRENT CARCINOMA OF THE FEMALE BREAST ENTIRELY DISAPPEARING UNDER THE PERSISTENT USE OF THYROID EXTRACT CONTINUED FOR EIGHTEEN MONTHS.[1]

By FREDERICK PAGE, M.D., Edin., M.R.C.S., Eng.,
Surgeon to the Royal Infirmary, Newcastle-upon-Tyne, etc.; and
WILLIAM H. BISHOP, M.B., B.S., Durh.

In December, 1895, Mr. Page was asked by a former house surgeon of his, Dr. Bishop, of Wylam, to see with him a woman, aged 61 years, who was suffering from carcinoma of the left breast of some six months' duration. The general health was very much impaired. The growth was situated in the upper part of the breast and was of the size of a hen's egg and both the axillary glands and their lymphatics were affected. On January 7, 1896, the breast was removed, together with the axillary glands and fat, the lymphatics and the pectoral fascia. In April there was a recurrence of the disease in the neighborhood of the cicatrix, and on July 18 several nodules, varying in size from that of a pea to that of a walnut, were removed. A portion of these growths was sent to the Clinical Research Association and reported on as follows on July 29: "Both specimens show a soft carcinomatous growth, with small alveoli and very scanty stroma. At first sight it might be mistaken for sarcoma, but the mode of growth at the edge and the invasion of the fatty tissues is unlike that of sarcoma. In the section of the skin the dense fibrous tissue in the corium prevents any very rapid multiplication of the cancer cells." Three weeks after this second operation other nodules appeared in the scar, and later a group developed below it and in the subcutaneous fat. Further interference was declined, and, indeed, did not seem to be feasible. The nodules steadily increased in size and number. In September, 1896, at the suggestion of Dr. Bishop, thyroid extract was given quite as a forlorn hope. At first three grains were taken daily, and the dose was gradually increased till fifteen grains could be taken daily. During the eighteen months that the treatment was persistently followed it was found necessary occasionally to suspend the use of the drug for some days on account of its toxic effect. The patient is now quite well. She has gained flesh and health to such an extent that it is difficult to believe that she is the same person who was operated upon two years and four months ago. There is no trace of the disease to be discovered.

Remarks by Mr. Page.—Such are the facts. It may be that this case is a vagary of recurrent cancer, but taken in conjunction with the cases of recurrent carinoma reported by Dr. G. Beatson, of Glasgow, in all of which thyroid extract was given, I consider it to be one of great importance and interest, so much so that I intend to try the persistent administration of thyroid extract in every case of recurrent or inoperable carcinoma of the female breast coming under my observation. In due course I trust to record the results of the experiment, and in the meantime the case is reported in the hope that it may induce others to give the treatment a trial.

---

[1] *London Lancet.*

Remarks by Dr. Bishop.—I am much indebted to Mr. Page for permission to add the following remarks. When, despite the completeness of the first operation, the growth returned three months later, and when only three weeks after the second operation it again made its appearance, the case looked hopeless. It was then that in sheer desperation I determined to try thyroid extract, having read Dr. Beatson's papers,[2] notwithstanding his opinion that it has "little effect when given alone." Mr. Page cordially approved of the experiment. At first it did not seem to have any effect, but it was soon apparent that no increase in size was taking place, and the patient maintained—rightly, I think—that the growths were softer. In the spring of last year, however, about six months after the treatment was commenced, a lump appeared above the operation scar and grew rapidly till it was as large as a walnut, when it seemed to cease growing. I did not examine the breast from Christmas of last year (when, in addition to the growth just mentioned, there were a number of nodules in and about the scar and a group below it in the subcutaneous fat) until April 18 last, when I was amazed to find that every trace of the growths was gone. I at once informed Mr. Page, and he immediately went to see the patient and confirmed my observation.

It is always dangerous to draw conclusions from a single case, but if thyroid extract had no effect upon the growths, to what is their disappearance due? And if beneficial results from its use are, as Dr. Beatson maintains in his papers, dependent on a previous oöphorectomy, why should it alone not succeed after the menopause has been passed? If it is really, and of itself, of utility in carcinoma of the breast, then it ought also to be of service in carcinoma of other parts of the body, and I suggest its trial in inoperable cases when the growth is situated elsewhere than in the mamma. In this connection, also, it would be interesting to know whether the subjects of thyroidectomy, or those in whom that gland is functionally inactive, are peculiarly liable to carcinomatous growths. I am not aware that such is the case. It would also be interesting to get information as to the condition of the thyroid gland in the subjects of this disease. How the thyroid extract acts it is very difficult to surmise. Whether it alone, or in conjunction with the menopause (either naturally or artificially produced), tends to promote a fatty degeneration of the carcinoma cells, or by stimulating the lymphatics to remove the carcinomatous material (to which theory there would seem to be obvious objections), or by increasing metabolism enables the phagocytes to cope with the disease, or acts in some other way, further data can alone supply facts for a decision.

Not the least puzzling feature of the above case is the development of a growth during the treatment. At the time, however, the patient was suffering great anxiety owing to the illness of her husband, and was constantly up at night. The general health suffered much, and it is possible that the thyroid tabloids were neglected. What we learn from this, and I think also from Dr. Beatson's cases, is that to do any good the administration of thyroid gland must be pushed to its full physiological effect and continued over a great length of time.

---

[2] *The Lancet*, July 11, 1896, p. 104, and July 18, 1896, p. 162.

ON THE TREATMENT OF SOME OF THE MORE COMMON EYE AFFECTIONS.

The *Edinburgh Medical Journal* for November, 1897, contains a continued article by Mr. Berry with this title, in the course of which he tells us that the treatment of cases of conjunctivitis with marginal ulceration of the cornea should be the same in most respects as that devoted to the cure of keratitis or conjunctivitis alone. Lead lotions must, however, be avoided, as they lead to dense white deposits in the cicatrices, which remain after the ulcers have healed. Where the ulcers are superficial and small, a drop or two of a weak nitrate of silver solution (one grain to one ounce) may be dropped into the eye, after an irrigation with boric acid lotion, once daily for three or four days. This often at once induces healing, even in cases where the ulcers have continued in much the same state previously for a couple of weeks or longer. The ulcers often cause a good deal of pain. To allay this, cocaine may be used (two to five per cent. solution of hydrochlorate), but it is not advisable to apply it very frequently—for instance, every half hour, as is often done. Immediately before and after each irrigation is sufficient to give relief. It is a good plan, too, to instil a few drops into the eye the last thing at night, as the local anæsthesia thus caused often allows the patient to fall asleep, which the pain otherwise prevents. Eserine drops are often recommended for the treatment of catarrhal as well as for other forms of corneal ulcer. The writer has never been able to satisfy himself that they are of any use at all for this purpose, and as they are sometimes actually hurtful, they should not be used. Dark glasses are particularly indicated in all cases of conjunctivitis with marginal corneal ulceration.

Deep Marginal Ulcers.

Deeper and more rapidly extending marginal ulcers should be brushed once or twice with chlorine water (full strength), or if this is not available, with a two per cent. solution of nitrate of silver. The brushing, to be effectual, should be done with some force, the camel's-hair brush being dabbed on to the ulcers several times so as to bring the antiseptic properly in contact with all parts of their surface. By using cocaine this can be done without causing any pain to speak of. Afterwards, dusting with finely powdered iodoform is useful after each irrigation. The application of iodoform in powder is preferable to its use either ointment or in gelatine disks, the latter of which dissolve in a few minutes and leave only a comparatively small quantity of the iodoform *in situ*. When deeper marginal corneal ulcerations exist, in the absence of much conjunctival secretion, it is sometimes a good plan, if they do not tend to heal, to cover them with a flap of conjunctiva. This is done by undermining the surrounding conjunctiva with scissors and stitching it forwards.

The main characteristics of the forms of conjunctivitis which have been so far considered are the nature of the secretion from the inflamed mucous surface and the rarity of corneal complications.

In purulent conjunctivitis, on the other hand, serious corneal mischief has always been dreaded. There are, probably, several causes of purulent inflammation of the conjunctiva. Much the most frequent cause, and the one which gives rise to changes which may be taken as the type of those caused in other ways as well, is the gonococcus inoculation. This is met with as gonorrhœal ophthalmia and in new-born infants as ophthalmia neonatorum.

Gonorrhoeal Conjunctivitis.

Apart from the copious and distinctively purulent secretion of gonorrhœal conjunctivitis, which shows itself in two or three days after the first symptoms of irritation have begun, there is rapidly developed a great, often an excessive, inflammatory swelling and tenseness of the eyelids. The ocular conjunctiva and subconjunctival tissue is also swollen, tense and œdematous. This is what is called chemosis. In a few days the tenseness in the lids and ocular conjunctiva, especially the former, subsides, but the pus continues to be formed in great quantity.

It is important, and usually not difficult, to recognize early the specific nature of the conjunctival inflammation. The tense swelling of the lids and chemosis are, in fact, characteristic. The only thing which might mislead one is the appearance presented by severe cases of a mucopurulent type which have been persistently poulticed for a day or two. But even in these there is an absence of the hard, tense swelling presented by most cases of gonococcus or similar infection.

Having regard to the grave consequences to the cornea which a purulent conjunctivitis may entail, the treatment has to be considered not only from the point of view of what is best for the infected eye, but also with regard to prophylaxis in the case of the other eye. Indeed, the first thing which should always be done whenever there is cause to diagnose a gonorrhœal or other purulent conjunctivitis of the one eye, is to actively disinfect the other, and then secure it against the risk of subsequent infection—a risk which, it must be remembered, exists so long as the purulent discharge continues. The disinfecting of the sound eye is, of course, undertaken on the supposition that it may possibly have been recently inoculated, any may be done in the following way: After dropping a little cocaine solution into the conjunctival sac, the lids are everted, and the mucous surfaces, including as far as possible the folds, painted over with chlorine water. The lid margins are then rubbed freely with little pledgets of absorbent cotton wool moistened in the same antiseptic. This is followed by a free irrigation of the whole conjunctival sac, with not less than a pint of a two per cent. boracic acid solution. A little iodoform or boracic ointment is lastly rubbed along the lid margins and the occlusion bandage applied.

Technique of Application of an Occlusion Bandage.

The first indication to be complied with in adjusting an occlusion bandage for this purpose is, of course, to secure the eye from any chance of becoming inoculated by the purulent secretions from the other side; the main risk of such inoculation occurs at night. When the discharge is copious, and the patient lies on the side of the sound eye, some pus may readily find its way across the bridge of the nose, or even be transferred unconsciously by the patient's hands. Such an accident may be prevented by covering the sound eye with a good-sized pad of absorbent cotton wool, held in place by a properly applied bandage. The following plan may be recommended: Next the eye—*i. e.*, immediately over the closed lids—place a circular piece of lint (two to two and a half inches in diameter) which has been dipped in boracic lotion. Powder a little iodoform over its inner edges, and then cover this with a pad of absorbent cotton wool, which, to the inner side at all events, projects a little beyond the lint. The pad is then secured first by two pieces of thin tape plaster (one-fourth or one-half inch), placed diagonally across it from forehead to cheek, and further by a domett or thin flannel bandage, eight to nine feet long and two and a half inches wide. One turn of the bandage may first be taken round the head, beginning from the opposite side to that of the eye which is to be covered; the next turn is carried down over the pad below the ear; and the third over the upper part of the pad, and covering in the ear. This occlusion bandage need not be changed more than once every second day. Such a bandage, while efficiently preventing direct inoculation, has the disadvantage of depriving the patient of the use of his eye. In most cases this is tantamount to keeping him in the dark altogether, as the pain and swelling of the lids make it impossible to see with the affected eye. This privation, added to the trouble and anxiety which his condition cause him, has a very depressing effect upon the patient. It is therefore better, as soon as possible, to adopt some arrangement whereby sufficient protection is provided against inoculation, while at the same time the good eye is not altogether thrown out of use. The simplest and most readily prepared contrivance of this nature is what is known as Buller's shield. This consists of an ordinary watch-glass fixed in an aperture between two pieces of adhesive plaster. The shield may be made and applied in the following manner: After cutting out a rectangular piece of paper five inches long by four inches broad, this is held over the eye in such a position that its inner border just covers the middle ridge of the nose, and its lower border lies horizontally on a level with, or slightly below, the lowest point of the nostril. A circular opening half an inch or less in diameter than the watch-glass which has been procured for a window is then cut in the paper, the center of which should coincide as nearly as possible with that of the pupil when the eye is directed straight forwards. From this paper pattern two pieces of rubber or other adhesive plaster are cut. Then, holding these two pieces together with their non-adhesive surfaces in contact, and so that edges and apertures exactly coincide, a strip one inch wide is cut off the top and one-half inch wide off either side of one of them. The watch-glass, with its concave side downwards, is laid on the adhesive surface of the smaller piece of plaster, so as to cover in the opening, and the plaster securely fixed round the concave rim of the glass in this position. This piece with its glass is then fitted to the other, so that the two lie with their adhesive surfaces in contact in the same position as they did when the surfaces were reversed. There is thus formed a shield, three margins of the under surface of which can be readily fixed along the forehead, down the side of the cheek and along the nose. The lower edge is not plastered to the face, so that air gets in behind the shield and prevents dimming the glass.

In applying the shield the watch-glass should be secured in a suitable position in front of the eye, and particular care should be taken that the margin along the nose adheres tightly. An extra strip of plaster may with advantage be fixed over this margin. The advantage of Buller's shield over a regular occlusion bandage is not confined to the relative comfort which the patient obtains; an additional advantage is that it does not as a rule require to be changed, as it admits of a ready inspection of the eye by the surgeon.

Dangers to the Cornea.

In the treatment of the inflamed eye everything must be done which is calculated to prevent the cornea becoming involved. It is well to recognize that the main, if not the only, cause of an accompanying corneal ulceration is an inoculation with the specific discharge in places from which the protecting epithelial surface has been removed. The denuded cornea is certainly easily inoculated. Possibly inoculation may take place even when the epithelial covering remains intact. It certainly does not do so readily, and therefore from a clinical point of view it is well to keep before one the desirability of providing as far as possible for the protection of the epithelium. Careful handling is therefore a most necessary precaution. Removal of the epithelium is too often caused by forcible opening of the swollen lids. Owing to the pain and swelling of the lids, it is no doubt often difficult to get a proper view of the eye without using some force. Perhaps the best plan is to instil a few drops of a solution of cocaine (two to five per cent.) into the eye, and then separate the lids by the finger-tips applied to their margins, taking care not to allow the nails to scrape on the cornea. Indeed, the use of the cocaine should be as much to facilitate gentle handling as to diminish the pain which an examination causes the patient. This is often forgotten, yet it is of great importance. Cocaine should only be used during any manipulations which the treatment renders necessary, not at other times. Elevators or speculum should in general be avoided, and when introduced, and whilst *in situ*, must be kept held away from the cornea, so that the epithelium may not be injured in any movement of the eye. Strong caustic solutions are also liable to injure the corneal epithelium when applied to the conjunctiva. Those most commonly in use are solutions of nitrate of silver and corrosive sublimate. The former should not be used on this account stronger than two per cent., or ten grains to the ounce, and the latter not more than .002 per cent., or about one grain to the ounce. But it is better to avoid these solutions altogether.

SCARLATINA.*

Infection.

Ingersles[1] reports three cases in which scarlet fever began in solutions of continuity of the skin, the patients having been exposed to other cases of scarlatina. In one the virus was probably introduced through a paronychia and corresponding lymphangitis; in the other two wounds from burns furnished the points of entrance. The symptoms in all were characteristic, except as regards throat symptoms. He suggests that, if a careful examination of the skin were more frequently made in scarlatina with mild throat lesions, cases similar to these would be more frequent, a wound in the skin being easily overlooked.

Klein[2] has made a bacteriological study of the desquamating skin of persons at various stages of convalescence. At no stage of the peeling process after scarlatina has he detected in the cuticle any microbe which could (to quote) "be thought of as having concern in spreading the disease." The urine afforded a similar negative result.

Grasset[3] reports a case of scarlatina in a boy of 2½ years, living in a district which had been free from scarlet fever for years. Investigation showed the source of infection to be a letter, received six days before the boy sickened, from the grandparents, announcing that a child living with them was convalescent from scarlet fever, and "shedding her skin," a few pieces of the latter being enclosed. The letter and its contents were used as a plaything by the boy until the day he sickened. Grasset refers to a report by Laurie of a German woman who wrote during convalescence from scarlet fever to two friends in France, both of whom subsequently developed the disease and died.

Rotch[4] says scarlet fever is the most irregular of all the exanthemata in its virulence and in the manifestations which it presents in different individuals. The skin appears to be the chief vehicle of the contagion, which has a wonderful tenacity for clothing and other articles, and may be capable of reproducing the disease for many months. In contradistinction to measles, which is known to be highly infectious in the early stage, scarlet fever appears to be most infectious in the latter stages, and the contagium is most likely to be disseminated during the stage of desquamation.

Seitz[5] was unable to find either bacteria or protozoa as primary causes, and looks on streptococci as secondary invaders. The variability of the death rate, so often mentioned, is very striking, as shown by the extremes of mortality in different years: 2.6 to 15 per cent. Season and weather have no definite influence on the frequency of complications. The local infectiousness of certain houses and rooms, and the family disposition, are often observed, as also the temporary individual disposition, many persons being affected only after several weeks' exposure. As to age, the first year of life shows the smallest morbidity. Most cases occur between the second and fifth years. Out of 833 cases second attacks were twice noted: once after one, and once after two years; in the latter the second attack was the more severe.

---

* *Monthly Cyclopædia of Medicine.*

[1] *Zeit. f. Klin. Med.*, B. 31, '97.

[2] *Brit. Med. Jour.*, Jan 1, '98.

[3] *Ann. d'Hyg. Pub.*, vol. xxxiv; *Centr. f. Bakt., Parasit. u. Infect.*, Jan. 9, '97

[4] *Boston Med. and Surg. Jour.*, May 27, '97.

[5] *Munch Med. Woch.*, No. 3, '98.

Coxe[6] declares scarlet fever, in its relation to the health of the race, holds first place, and the infection is probably confined to the period of scaling off. The scarlatinal virus surpasses any other eruptive fever except variola in its tenacity and portability. One of the most marked features of the disease is the predisposition which it entails to the incursion of pathogenic germs other than those believed to cause the disease itself, thus causing croupous inflammations, etc., as complications.

Prophylaxis.

Coxe[6] further adds that the most reliable method of prophylaxis is isolation of patients and nurses, and thorough use of disinfectants in their rooms and on their persons. All articles not absolutely needed should be removed from the sick-room, and no one except nurses and physicians allowed to enter. Constant ventilation should be insisted upon. Clothing used about the patient should, on removal, be placed in a tub of boiling water containing carbolic acid and sulphate of zinc, or in corrosive sublimate solution, 1 to 1,000, and allowed to soak at least an hour; then placed in boiling water for washing. Vessels used by the patient should have a disinfecting fluid constantly in them, and be cleansed with boiling water immediately after using. Water-closets should be disinfected daily with lime or sulphate of zinc. Sterilized cloths should be substituted for handkerchiefs, and burned after using. During desquamation the patient should be kept well anointed with carbolized vaselin or like material; the physician also should anoint his hands and face and put on a close-fitting gown and hood before entering the room, and wash and disinfect his hands and face and put the cap and gown in a bag containing a sponge saturated with formaldehyde before leaving the house. After convalescence, the room and everything which has been exposed should be thoroughly disinfected, and feather-beds and straw-beds, or other things which cannot be thoroughly disinfected, be burned. Formaldehyde is probably the best, safest and cheapest disinfectant to use. The ordinary formalin may be evaporated by heat into a closed room, a pint being so used for every thousand cubic feet of space. Thus used it is more destructive to germs than any other disinfectant. That an outbreak of scarlet fever at Plainfield, N. J., was traced to the milk supply is an editorial statement.[7] One of the employes with scarlet fever continued to assist in handling the milk.

Diagnosis.

Lindsay[8] summarizes the main points: initial vomiting, very constant in children under ten, less so above that age, and rare in measles, German measles and diphtheria; undue frequency of pulse—say 140 to

---

[6] *The Sanitarian*, August, '97.

[7] *Med. News*, June 26, '97.

[8] *Brit. Med. Jour.*, Feb., '97.

150—out of proportion to the other symptoms; the rash, beginning on the upper part of the chest, over the clavicles, and about the flexures of the neck, often well marked on the backs of the wrists. To discriminate between scarlatina and German measles he is in the habit of relying on the following points: In scarlatina there is initial vomiting; a brief, but well-marked, prodromal stage, with vomiting, chills, headache and sore throat; no rash on the face; fairly well marked constitutional symptoms; the sore throat sometimes going on to ulceration; no early enlargement of post-cervical glands. In German measles there is no vomiting, no prodromal stage, the rash being often the first symptom, and always appearing on the face; little or no constitutional symptoms; no ulceration of the throat; a very characteristic early enlargement of the post-cervical glands.

Rotch[9] says that a very important point, which is often of great aid in the diagnosis of a doubtful case, is distribution of the eruption characteristic of the disease. In true scarlet fever it first appears on the neck and thorax. There is also a general intense redness of the whole throat, including the hard palate. The entire mucous membrane is affected, and the small dots, which—in connection with the hyperæmic condition of the skin—represent the condition of a punctate erythema, from being localized on the moistened mucous membrane, have a little more darkened appearance than the adjacent reddened tissue. In measles, on the contrary, the mucous membrane of the throat has a blotchy appearance and is of a darker red than is seen in scarlet fever, while the mucous membrane between these blotches is but slightly congested in comparison with that of scarlet fever.

Lemoine[10] reports twenty-three statistical cases in which the eruption was exclusively limited to the face. The patients suffered from an angina, with fever and redness of the face. The fever fell, but the redness continued, and was shortly followed by a more or less abundant desquamation. A few of the cases afterward developed albuminuria, anasarca and symptoms of uræmia. Probably a transition stage between the anginoid scarlatina and scarlatina with general eruption.

Symptoms.

Meyers[11] observed a clynical symptom which has, up to the present time, passed unnoticed, probably because scarlet fever is studied especially in children, who usually do not give very exact information regarding their sensations. This is a slight paralysis of the extremities. The patient may complain of not being able to move the hands or the feet, though this is exceptional, and was observed in one case only; more frequently it is only a numbness of the hands accompanied by a sensation of pricking or tingling; or the numbness may be absent and only the pricking or tingling sensation may be felt, localized in the palmar surface of the ends of the fingers or in the palm of the hand. This symptom is rarer in the feet; it is found in them at the same time that it occurs in the hands, or else separately. It appears during the eruption and quite frequently, at the same time with it, but exceptionally before it. Its duration is variable; it may be fugacious, lasting only a few minutes and then disappearing altogether. In the majority of cases it is of longer duration; it appears some hours or a day after the onset of the eruption, and persists for two or three days, usually with interruptions. It may also manifest itself at a later period, on the third, fourth, or fifth day of the eruption. Some patients do not present this symptom until they have occasion to use their hands; others present it on coming out of a cold bath or when they put their hands in water. The symptom is very constant, and was met with in seventy-nine of one hundred cases—these statistics relate to adults only; among children it was observed once accidentally in a boy 7 years old. The symptom also is not accompanied by any painful manifestation.

---

[9] *Boston Med. and Surg. Jour.*, May 27, '97.

[10] *Trans. Soc. Med. des Hop.*, Jan. 29, '97.

[11] *La Press. Med.*, March 5, '97.

In cases of abortive scarlatina this symptom may aid in the diagnosis; it may also be of use in the retrospective diagnosis in patients who do not present the eruption and in whom desquamation is fugacious or very late. This symptom is absent in other eruptions.

Fussell[12] queries what is the condition of the tongue which is considered characteristic of scarlet fever, and what is the appearance of the tongue to which the term "strawberry" is applied? During the first three or four days of scarlet fever the tongue is white-coated, with the papillæ prominent, sticking out through the white fur, as if the organ had been sprinkled with red pepper. After the fourth day this coating disappears—sometimes gradually, but sometimes quickly—leaving the tongue of a bright, shiny red, with very prominent papillæ.

The first conditions, while common in scarlet fever, and while the redness of the papillæ is more marked in that disease than in any other, occur in many febrile affections, especially where there is irritation of the digestive tract; therefore they cannot be characteristic of scarlet fever. The more or less desquamation of the tongue, leaving it bright red and rough, with prominent papillæ, does not occur in any other disease, and is therefore characteristic. If the term "strawberry" is to be applied at all, it should be to the rough, bright-red tongue with prominent papillæ.

Complications.

The chief sequel, the only one which is at all common, says Rotch,[13] is nephritis; but cardiac disease, commonly secondary to the nephritis, may occur. Lesions of the other organs are unusual, and have no direct connection with the scarlet fever; they are due partly to the fever and partly to the septic processes which have arisen in the course of the disease, and are presented, as would naturally be expected, by a congested condition of the various internal organs, and by the usual changes which are found in pleuritis, pericarditis, endocarditis and meningitis. Scarlet fever may begin with such great cerebral excitement as to lead the physician to suspect meningitis, and it may not be possible to make a diagnosis until the efflorescence has appeared, which may not be until the eighth or ninth day. Most of the complications which arise in scarlet fever are due, probably, to the action of streptococci, either isolate or associated with other micro-organisms. These micro-organisms produce serious symptoms, which are often followed by death, either directly, giving rise to septicæmic processes, or indirectly, by nephritis. The earlier in the course of the disease the symptoms of nephritis appear, the severer, as a rule, will be its type. The extent of the albuminuria is of less consequence than the total quantity of the urine. A rapid and extensive diminution of the urine is ominous, as it indicates the accumulation of nitrogenous waste in the blood and the danger of a resulting uræmia. The albumin occurring early in the disease is more apt to be in large quantities than when it appears first in the third or fourth week. Hæmaturia is frequently present in this form of nephritis, but ordinarily of itself adds little to the gravity of the disease. The œdema of the face may be followed by a rapid involvement of the ankles and legs, and at times it may become general. During the course of a general œdema the desquamation is apt to cease and to return on its disappearance. The œdema may last for months or may pass away quickly; it may be entirely absent, but in such cases the nephritis is almost invariably of a light grade. At times, during the presence of a general œdema serious effusions into the pleura may occur. Œdema of the lungs and brain, though very rare, may also supervene. Instead of a slow development beginning with œdema of the face, there may be an acute attack, ushered in by fever, vomiting, headache, œdema, amblyopia, coma and convulsions. Relapses may occur many weeks after an attack of scarlatinal nephritis, and the case should be watched with the greatest care for several months. The nephritis of scarlet fever, although it may last for several months, has a tendency to ultimate recovery in children, on account of their wonderful recuperative powers. It is also rare for the renal disease following scarlet fever to become chronic. Retinitis and amaurosis at times occur during the progress of the nephritis. Rotch states that in the cases of amaurosis it has been noticed that, although the loss of sight may be complete, almost always where uræmia and amaurosis are coincident there is found no perceptible change in the retina, no congestion of the papillæ, no increase of the intracranial pressure, and no intense œdema of the brain. The sight, under these circumstances, may be recovered completely.

---

[12] *N. Y. Med. Jour.*, May 22, '97; *Univ. Med. Mag.*, May, '97.

[13] *Boston. Med. and Surg. Jour.*, May 27, '97.

Regarding scarlatinal albuminuria, Dittmar[14] observed the urine of ninety-one consecutive cases of scarlet fever varying in age from one year and two months to fifty years, the majority, 84.6 per cent., being under fifteen years, and 62.6 per cent. being under ten years of age. In some cases as many as three or four specimens from each patient were analyzed daily, and, in all, over ten thousand specimens were examined for albumin and hæmoglobin. One or both were detected at some period in 52.7 per cent. of cases, and of these 60.4 per cent. were under ten and 81.2 per cent. under fifteen years of age. In most of the cases the quantity of albumin was small, and could be detected only by careful testing; in some cases merely an occasional trace was detected, but in others it persisted for weeks and was sometimes very considerable. In some of the cases "blood" alone seemed to be present, the albumin bearing a proportion to the hæmoglobin such as exists in normal blood. In other cases both blood and albumin were found, the amount of the latter being out of all proportion to the hæmoglobin. There was no particular date on which albumin seemed particularly prone to appear, although a relatively large number of the cases showed the presence of an abnormal constituent during the latter half of the first week, during the second week (ninth to the twelfth days), and on the thirty-first day than at any other period of the illness. The cases seemed to divide themselves into cases of "early" albuminuria, and cases of "late" albuminuria. Twelve cases were "early" albuminuria, and in nine of these the albumin disappeared, only to reappear again later in the disease. The interval during which the urine was free was from three to forty-eight days.

---

[14] *Glasgow Med. Jour.*, Dec., '97.

The somewhat rare occurrence of various paralyses in the course of scarlet fever has been studied by Alexieff,[15] who has only been able to collect 7 or 8 published cases, together with 2 coming under his own observation. The first suffered from left hemiplegia about three weeks after the eruption, the face, tongue and upper and lower limbs being affected. In about twelve days a marked improvement set in, progressing to complete recovery. In the other case there was complete paralysis of the right half of the body; the paralysis was of a particularly marked degree, with loss of the right naso-labial fold, complete loss of power in both upper and lower limbs and the right side, loss of knee-jerk, and impaired sensation. There were no symptoms of endocarditis, but broncho-pneumonia with a marked degree of albuminuria. On post-mortem there was subacute parenchymatous nephritis, degeneration of the cardiac muscle, thrombosis of the left middle cerebral artery, and almost complete softening of the lenticular nucleus and of the posterior portion of the internal capsule.

Symes[16] remarks that rashes during convalescence are by no means of uncommon occurrence, and they should not be confounded with the true relapse, in which the patient passes again through all the stages of the first attack. The true secondary rashes are of importance, however, as they frequently indicate the beginning of a period fraught with grave danger.

Secondary rashes may be erythematous, urticarial, eczematous, papular, or hæmorrhagic, and generally appear in or about the third week, and almost invariably in patients in whom the initial throat symptoms have been of more than average severity. Although the appearance of the skin lesions frequently coincides with a recrudescence of amygdalitis, Symes does not think it likely that they are the result of septic absorption from fauces. In some cases no amygdalitis is observed; and there is seldom any ulceration or sloughing; in others the rash precedes the appearance of tonsillar trouble. Probably about the third week there is a certain period during which certain products of the disease are being eliminated, when the organs engaged are apt to suffer. In the digestive system such disturbance is marked by diarrhœa and vomiting, and in the kidneys by nephritis and albuminuria, the latter of so slight a nature, perhaps, as to be disregarded. The lymphoid tissue of the tonsils and the lymphatic glands are noticeably excitable, and that great excretory organ, the skin, is frequently affected. The septic rashes are accompanied by much wasting, and the mortality is very high. Symes cites Mahomed, who observed that in scarlet fever there are certain changes of constant occurrence between the eighteenth and twenty-second days of the illness, such as a rise of temperature and arterial tension, along with diminished excretion of urine and urea, albuminuria, bronchorrhœa, adenitis and diarrhœa. Secondary rashes appear to have received but little attention.

---

[15] *Jour de Med.*, July 10, '97.

[16] *Bristol Medico-Chir. Jour.*, March, '98.

Seitz[17] remarks that recidives of the rash are often noted, usually after eight to ten days. Nephritis is not affected by season, nor by diet, but is dependent on the character of the reigning epidemic. In patients under practically uniform conditions, the frequency of nephritis varies from 9 to 41 per cent. in different seasons. The greatest proportion happens in summer and the complications—sometimes hæmorrhagic, sometimes uræmic—occur even in children on milk diet and in bed. Many cases of so-called intermittent albuminuria and chronic nephritis are due to unrecognized or neglected scarlatinal nephritis.

Littlewood[18] reports case of gangrene in a boy aged 4 years. Numerous small discolorations were noticed extending over both lower limbs from the toes to within two or three inches of the knees anteriorily and posteriorily. The scarlet fever process followed a favorable course, except that day by day the discolorations of the limbs became more marked, though continuing patchy, lividity being most intense at the toes and feet, and becoming less so from below upward. On the twelfth day the limbs retained a considerable degree of warmth, probably somewhat exaggerated by the more or less continuous application of artificial heat, but in neither limb could pulsation in the femoral arteries be distinctly felt.

Pain now appeared, apparently of an intermittent character, and the discoloration spread to some four inches above the knee anteriorly and to slightly above the center of the popliteal space posteriorly, being almost exactly similar in both limbs. During the next five days the temperature subsided to the normal. Five days later an oblique line of demarkation formed, roughly extending in both limbs to three inches above the knees in front and to the center of the popliteal spaces behind. At this time cardiac dilatation was noted, together with a suspicion of roughness of the first sound at the apex. Amputation was accordingly advised and carried out.

Goodall[19] reports case of a girl, 8 years of age, who, in the eleventh day of scarlatina, had convulsions, followed in a few hours by general rigidity and coma. The temperature reached 107° before death. No albumin could be detected in the urine. The autopsy showed thrombus in the veins of Galen and the right lateral sinus. The choroi plexuses were covered with a thick coating of fresh lymph. The optic tracts showed red softening. The ears were normal, but slight ulceration of the tonsils present.

---

[17] *Munch. Med. Woch.*, No. 3, '98.

[18] *Lancet*, Lond., July 10, '97.

[19] *Proc. Royal Soc. Med. and Surg.*, Mar. 23, '97.

Recurrence.

Drake[20] reports a case in which the patient had two distinct attacks of scarlatina, exfoliation of the epidermis occurring after each attack.

Millard[21] remarks that the true malignant form is now fortunately comparatively rare, and in consequence scarlet fever is no longer the dreaded and fatal disease it was formerly. What this change in type is due to we do not know, but it is to it rather than to any improvement in methods of treatment that we must chiefly attribute the remarkably low case-mortality which now obtains. When the true malignant form does occur, we are forced to realize how helpless we still are. Out of an experience of over 5,000 cases Millard can only remember seeing three undoubted cases in children under four months of age.

Treatment.

Huber and Blumenthal[22] experimented with the blood of persons convalescent from scarlatina. Blood was drawn from a vein of the elbow; the serum was mixed with an equal amount of physiological solution of salt, 1 per cent. of chloroform added, and the mixture passed twice through a Beckfeld filter. The serum was used in thirteen cases of scarlet fever. It mitigated and shortened them all.

Gordon[23] records the case of a boy, aged 6 years, in an apparently moribund condition on the fourth day of an attack of scarlatina, but who revived under stimulant treatment, and seemed to improve until the seventh day, when he grew rapidly worse and seemed to be dying from septicæmia; was semicomatose, with failing heart, dusky rash, and diarrhœa; pulse, 180; temperature, 103°; offensive discharge from fauces containing streptococci and staphylococci, but no bacilli. Ten cubic centimeters of streptococcic serum were injected under the skin of the abdomen. The next day the temperature was 103°; the pulse, 106 and stronger; the fauces less offensive and the heart less dilated.

Another dose of 10 cubic centimeters was then given. After this no bad symptoms were observed, and the boy made a good recovery, convalescence occurring very much sooner than is usually the case with those who have had septic symptoms. Gordon suggests that this treatment may be valuable in septic cases when the signs exist from the first and are not in proportion to the severity of the throat symptoms, or when the condition is due to the absorption from a sloughing throat or nose. Later[24] he states that the serum is not of much value in cases where the septic symptoms appear late and are due to absorption from sloughing tissues, but strikingly good result may be obtained when there is septicæmia at the onset and the serum is given early.

---

[20] *Med. Rev.; Amer. Prac. and News*, May 15, '97.

[21] *Brit. Med. Jour.*, Jan. 15, '97,

[22] *Berlin. Klin. Woch.*, No. 36, '97; *Gaz. Heb. de Med. et de Chir.*, Nov. 21,'97.

[23] *Lancet*, Lond., Jan. 2, '97.

[24] *Proc. Laryngol. Soc* , Lond., March 10, '97.

M. Roger[25] says that, out of a hundred and eighty-three cases during six months, only two died. He determined to make trial of the serum treatment. At eleven o'clock in the morning phlebotomy was practised, and afterward eighty cubic centimeters of defilbrinated blood taken from a patient convalescent from scarlatina were injected under abdomen. Five hours later the patient was sleeping quietly and breathing easily. When he awoke and moved, the respiration changed and became the Cheyne-Stokes type; the pulse was 120 and feeble; the tongue moist; the temperature, however, remained high and no urine was passed. A bath at 82° F. was then given and the temperature began to fall. Three hours later twelve ounces and a half of saline solution were injected subcutaneously, and in an hour urine was passed. Two hours later the patient was sleeping quietly; the pulse, 100; and the respiration 25. On the following day the patient felt better and asked for food; his tongue was raw, but moist; the eruption was pale, except on the legs, where it was still very pronounced; pulse feeble, but regular, with 80 pulsations; respiration, 22. During the twelve hours following the last injection the patient passed eleven hundred cubic centimeters of urine, of a dark-red color, but it contained no albumin. The temperature during the day ranged about 100.2° F., and on the following day became normal. M. Roger says that he has never seen such rapid recovery follow in such a grave case.

Rappapart [26] declares that antistreptococcic serum, even when injected repeatedly, has no influence either on the temperature or on the complications; four of the patients died.

Seitz[27] insists that the angina of scarlet fever is rarely diphtheritic. Out of 800 cases 200 had pharyngeal false membranes, but paralysis followed in only 1 case. Of 98 in which cultures were made, Loeffler's bacillus was numerous in 3 and scanty in 4, in repeated cultures; he, therefore, rejects antitoxin in scarlatinous angina and uses Heuber's injections of 3 per cent. carbolic acid, in the tonsil and soft palate, with cleansing and antiseptic applications by gargle, spray and swab.

Only those diuretics should be used which do not irritate the kidney, declares Rotch.[28] Acetate of potassium is one of the safer agents of this class in this complication. In severe cases, with general œdema and threatening uræmia, cathartics are rather more certain in action than diaphoretics and diuretics, and are specially indicated where, as is usually the case, constipation is present. Podophyllin, in doses of 1-10 grain, may be given to a child 5 years old, and be repeated a number of times; it usually acts quickly. The compound jalap powder, in doses of from 5 to 10 grains, may also be given where a rapid and decided derivation by the intestine is indicated. If the skin is hot and dry and uræmic symptoms (usually represented by anuria, somnolence, amblyopia, and headache) are present, resort may be had to the hot pack either wet or dry. In these cases it is preferable to have the child wrapped in a blanket and placed directly in a tub containing water at a temperature of from 105° to 107° F.; it should be kept in the water fifteen or twenty minutes, or even longer if necessary, then be taken from the wet blanket, enveloped in hot, dry blankets, and kept in them until the skin has become moist and reaction has taken place. While the child is in the bath, milk may be given, and stimulants if they are indicated by a weak and intermittent pulse.

---

[25] *Presse Medicale*, Aug. 26.

[26] *Bolnit. Gaz. Botk*, No. 40. '97.

[27] *Munch. Med. Woch.*, No. 3, '98.

[28] *Boston Med. and Surg. Jour.*, May 27, '97.

Hydrochloride of pilocarpine in doses of 1-20 to 1 grain may be given by the mouth to a child of 2 years, and subcutaneously if desired to a child 5 years of age. In these cases of threatened uræmia convulsions sometimes appear quite suddenly. Under these circumstances enemata of hydrate of chloral, from 5 to 10 grains dissolved in water, are of value in controlling the nervous phenomena; but Rotch prefers a combination of bromide of potassium and hydrate of chloral. Where the ascites is extreme, paracentesis abdominis is often of great value, not only in relieving the pressure, but also in increasing the action of the diuretic, which, perhaps, before was not acting freely. Digitalis is a valuable remedy, especially adapted to the treatment of the nephritis of scarlet fever and to that of the cardiac changes which result from it. By the administration of this drug the flow of urine is increased; but it is best given in the form of a freshly-prepared infusion, in teaspoonful doses every four hours, to a child 5 years old. Nitroglycerin is valuable where the action of the heart suddenly becomes feeble and irregular.

Pujador[29] also advises hypodermic administration of turpentine, with bicarbonate of soda added to it to prevent local irritation at the point of injection, in doses of 1 gramme daily for a child of from 3 to 6 years or 3 grammes, at the utmost, to an adult. If not well borne it may be given in capsules or emulsions. It prevents the occurrence of nephritis, or arrests it if it has already appeared.

Wiglesworth[30] gives carbolic acid as soon as the disease is suspected —laying great stress on the fact that the treatment must be begun early —in doses of from 1 to 6 grains according to age, freely diluted with water, and repeated every two hours as long as the rash remains visible. He then reduces the dose and the frequency of administration till convalescence is established. He claims to have pursued this practice for sixteen years with almost uniformly good results. He also gives the drug in the same doses as prophylactic to other children, and, as soon as the color of the patient's urine shows that he is "carbolized," he allows other children to associate freely with him, with the certainty they will not take the fever at all or will take it very mildly.

Alfaro[31] prevents nephritis in scarlet fever by promoting free diuresis, adherence to strict milk diet, plenty of drinks and cold hydrotherapy in severe cases. And further he strives to avoid the elimination by the kidneys of any irritating substances either from medication or from the food (inhibits phenolsalicylic acid, antipyrin, acetanilid, etc.) by keeping the functions of the skin as active as possible by general friction with fatty substances and tepid bath during desquamation; by keeping the mouth, nose and pharynx aseptic with frequent mild antiseptic applications to prevent the introduction of the streptococcus into the general circulation; by avoiding sudden or continued exposure to cold air. Lastly, he insists that no antipyretics or antiseptics shall be employed that can possibly affect the kidneys injuriously by elimination or absorption.

---

[29] *La Med. Infant.*, Sept., '97.

[30] *Lancet*, Lond., Oct., '97.

[31] *Anels del Circ. Med. Argentino*, Oct. 15, '97.

Scarlatinal Nephritis.

Kontrebinsky[32] says that the generally admitted pathogenesis of post-scarlatinal nephritis is autoinfection from the scarlatinal virus, whose toxic products can no longer be eliminated by the diseased kidneys. The chief aim should be to prevent the retention of these products by the organism, in two ways: (1) by combating the nephritis itself; (2) by heightening the excretory function of the skin and the intestines, or supplementing them by suitable means. To fulfil the first indication—i. e., to lessen the formation and spread of the toxins—the most efficacious means are: more or less absolute milk diet, according to the gravity of the case, combined with hydrocarbons; prescribing absolutely meat and eggs; rest in bed for three weeks at least; alkaline waters, Vichy particularly; pure air, constantly changed. The second indication is met by giving diaphoretics and purgatives and using other means to heighten the activity of skin and bowels for the elimination of the toxins, thus relieving the kidneys. As soon as albuminuria disappears, cutaneous perspiration also increases; to aid in this increase have recourse to warm baths and hot compresses—the air of the room should be uniformly warm: 95° F.—for fifteen to twenty minutes at a time; purgatives, enemata of warm water, and infusion of senna. Calomel is to be avoided.

THE ALKALINITY OF THE BLOOD IN GOUT.[1]

By ARTHUR P. LUFF, M.D., B.Sc., F.R.C.P.,
Physician in Charge of Out-patients, St. Mary's Hospital.

It is well known that an attack of gout may be accelerated by the ingestion of certain foods or beverages harmful either as regards their quality or quantity. One view, which has been commonly held for some time, is that such substances, when they accelerate an attack of gout, reduce the alkalinity of the blood, and so hasten the precipitation of sodium biurate from that medium, or, as is so frequently stated, they cause "an acidity of the system." It is assumed by those who hold this view that a nitrogenous animal diet diminishes the alkalinity of the blood, and so causes deposition of sodium biurate, and that a similar result is caused by the acids contained in wines and beers; whilst, on the other hand, it is assumed that a subsequent rise in alkalinity causes solution of the previously formed deposits. In the Goulstonian lectures of last year I showed by a series of experiments that a diminution of the alkalinity of blood serum neither diminished the solubility of sodium biurate in that serum, nor did it produce any effect on the rate of decomposition of sodium quadriurate by such serum, and that, therefore, it was extremely improbable that a diminution of the alkalinity of the blood could in any way affect the gouty process.

---

[32] *Jour. de Clin. et de Therap. Inf.*, No. 1, '97.

[1] *British Medical Journal.*

Although so many writers have inclined to the view that a diminished alkalinity of the blood is associated with gout, it is remarkable that such a view has no basis of positive experimental evidence whatever. As a matter of fact the proof is in the opposite direction. The experiments of Klemperer[2] show (1) that the alkalinity of the blood of gout is but very little, if at all, diminished; (2) that corresponding variations in the alkalinity may frequently be met with in healthy individuals; and (3) that a diminution of the alkalinity of the blood is a common pathological condition in diseases that are in no way associated with uratic precipitation, such as acute rheumatism, leukæmia, diabetes, carcinoma, and pyrexia. I therefore thought it advisable to make systematic determinations of the alkalinity of the blood throughout the duration of an undoubted attack of gout, and to compare such alkalinity with the average alkalinity of specimens of blood drawn from a number of healthy individuals.

TABLE I.—*Showing the Results of the Determinations of the Alkalinity of the Blood of an Adult Man During an Attack of Subacute Gout.*

Dates of Determinations, and Relations to Treatment.		Alkalinity Represented as Percentage of Anhydrous Sodium Carbonate Present in the Blood.
February 4	(Commencement of attack and before treatment was begun) ...	0.167
" 6	(Treated with colchicum only) ...	0.167
" 8		0.167
" 10		0.156
" 12		0.167
" 15		0.158
" 17		0.158
" 19	(Treated with citrate of potassium and iodide of potassium only) ...	0.167
" 22		0.180
" 24		0.173
" 26		0.161
" 28		0.179
March 2	... ...	0.167
Average alkalinity throughout the attack	...	0.166
Average alkalinity of healthy blood	... ...	0.167

The process that I employed for these determinations of the alkalinity of the blood was the one recently devised and described by Dr. A. E. Wright[3]. This process is an extremely ingenious and reliable one, and possesses the great advantage of not requiring more than two or three drops of blood in order to make an accurate determination of its alkalinity.

---

[2] *Deut. Med. Woch.*, 1895, Band xxi, p. 655.

[3] *Lancet*, September 18, 1897.

I first estimated the percentages of alkalinity of specimens of blood drawn from twenty-five healthy male adults, which I found to vary from 0.161 to 0.185 per cent. of anhydrous sodium carbonate, the average being 0.167. This average I have taken as representing the normal alkalinity of the blood. In the following table (Table I) are shown the results of the determinations that I made of the alkalinity of the blood of a patient suffering from subacute gout; the estimations were made throughout the duration of the attack, mostly on alternate days. The normal alkalinity of healthy blood is shown for comparison at the foot of table I.

These results show that throughout this attack of subacute gout the alkalinity of the blood was practically the same as the average alkalinity of healthy blood.

Another erroneous assumption that has been made by some writers is that variations in the acidity of the urine can be taken as a gauge of corresponding variations in the alkalinity of the blood, and that, therefore, a fall of acidity in the urine means an increased alkalinity of the blood, and *vice versa*. That this assumption is wrong is shown by reference to the folowing table (Table II), in which are arranged side by side the determinations that I made on the same days of the alkalinity of the blood and of the total acidity of the urine for each twenty-four hours. The case was the one of subacute gout referred to in the previous table.

TABLE II.—*Showing the Absence of any Constant Relationship Between the Alkalinity of the Blood and the Acidity of the Urine of a Patient During an Attack of Subacute Gout.*

Dates of Determinations.		Alkalinity of the Blood Represented as Percentage of Anhydrous Sodium Carbonate Present.	Acidity of Total Urine for 24 Hours Reckoned as Grammes of Hydrochloric Acid.
February	4	0.167	1.392
"	6	0.167	0.953
"	8	0.167	1.096
"	10	9.156	1.374
"	12	0.167	1.583
"	15	0.158	1.529
"	17	0.158	1.629
"	19	0.167	1.581
"	22	0.180	1.602
"	24	0.173	Alkaline
"	26	0.161	Alkaline
"	28	0.17	0.608
March	2	0.1	0.622

This table shows that no constant relationship existed in this case of gout between the alkalinity of the blood and the acidity of the urine; and, moreover, that on those days when, owing to treatment with citrate of potassium, the urine remained alkaline, there was no corresponding rise in the alkalinity of the blood.

Conclusions.

The facts dealt with in this paper lead to the following conclusions: (1) The alkalinity of the blood of gout is not necessarily diminished during an attack; (2) no constant relationship exists between the alkalinity of the blood and the acidity of the urine during an attack of gout.

TIGHT LACING—ITS RELATION TO UTERINE DEVELOPMENT AND TO DISEASES OF THE FEMALE ORGANS OF GENERATION.*

By W. E. FITCH, M.D., Savannah, Ga.

"Seest thou not *what a deformed thief this fashion is?*"

My only excuse for bringing this subject before the members of this association is the absolute necessity for seriously considering the subject of tight lacing as it exists to-day in all civilized countries.

The author's chief aim will be to call the attention of the profession to the evil effects of tight lacing and have them discuss the subject and devise means of informing the laity of the serious effects of this fashion. It behooves us as physicians to lead in this reform and to help it into practical channels.

This subject is of special interest to the general practitioner as well as the gynæcologist, while to the race it is of serious importance.

Convinced clearly as to the truth and firmness of this article's claim, the author feels no degree of trepidation in condemning this injurious fashion, and asks your support and influence in offering a bold protest against it.

The importance of this subject as an ætiological factor in diseases of the pelvic organs has been lost sight of in the mad rush for scientific research.

There is no one subject to which more importance should be given by the profession, and the author will try to faithfully point out in a practical manner the evil effects of tight lacing, both as a factor in the ætiology of disease and as an impediment to the normal development of the uterine organs, which offers the greatest hinderance to disease, and at the same time to contrast the well developed conditions and freedom from pelvic ills in those who do not practise tight lacing with frail constitutions—barrenness and various uterine disorders—found in those who wear the corset tight. I wish it understood that tight lacing is not confined only to those who wear the corset—for the clothing may be worn so tight as to do practically the same harm, though to a less degree by gradual compression.

Tight lacing is not the only cause of mal-development of the uterus and accessory organs occasioning diseased conditions, but I wish to firmly impress upon your minds that it is one of the chief factors. I will now ask you to briefly review the anatomy of the female pelvis, so that you may better comprehend the idea intended to be conveyed in this paper.

---

* Read at the 49th annual meeting of the Georgia Medical Association, Cumberland Island, April 21, 1898.

The bony pelvis consists of a solid, unyielding structure of bones, with a false pelvis representing a truncated cone, the base looking upward and slightly flattened on its anterior; the external and internal oblique, transversalis; pyramidalis and rectus muscles, with sheaths and tendons combining, form the lateral and anterior walls of a cylinder continuous with the last named structure. The spinal column lined with quadratus lumborum muscles form the posterior wall.

Inclosed in this cylindrical body (pelvis), from diaphragm downward, are the various abdominal and pelvic organs, all readily displaced by pressure. Among these we find the uterus which remains undeveloped and in an infantile state until near the approach of puberty when it develops rapidly and continues to increase in size, proportionately, to the rest of the body, until the normal size is reached, which is usually between the sixteenth and twentieth year.

The virgin uterus is about two and one-half inches long, its width, at about the level of the falliopian tubes, nearly one and three-quarter inches, and its weight about twelve drachms. It is suspended in the pelvis by ligaments amounting to little less than folds of peritonæum. The falliopian tubes and ovaries, with feeble supports, spread out on the right and left of uterus in connection with the broad ligaments almost at right angles. The ovaries formed from the Wolfian bodies rapidly begin to develop at the age of twelve—a new era sets in—maturation and periodical rupture of the Graffian follicles; the remaining parts of the generative organs, before and at puberty, rapidly increase in size. At least 85 per cent. of girls develop their generative organs between the twelfth and sixteenth years. It must also be remembered that the uterus and appendages are covered, almost entirely, by peritonæum, which is very susceptible to injury even from very slightest causes: that the construction of vessels supplying blood is of such a nature as to favor, either anæmia or congestion, proportionate to the degree of compression exerted. With the free mobility of the uterus and the increased supply of blood the parts are receiving, or should receive, enables us to more clearly understand the effects of pressure on an organ requiring rest and freedom during the period of devlopment.

It is at this time, and more frequently earlier, that parents give their consent for the girl to commence the use of the corset, and use their own ideas, which is not always moderate as to the degree of constriction. "Either thou art most ignorant by age or wert born a fool."—White. "Nature stood with stupid eyes and gaping mouth which testified surprise."

The corset is so constructed that when worn exerts its greatest influence-pressure from above the brim of the pelvis downward, constricting the abdominal walls, the lower part of the thorax, and pushing inward the costal cartilages, often the seventh and eighth overlapping.

The greatest constriction occurs in the immediate neighborhood of the stomach, which, when distended, as after a hearty meal, produces the "hour-glass stomach" found at times in this class of patients.

The small intestines with mesentary and colon are crowded into the pelvis. Douglas' cul-de-sac is filled with small intestines which helps to cause antiversion of the uterus when the rectum is loaded with fæces; and when the bladder is distended, rectum empty, retroversion results, displacing the intestines into the posterior cul-de-sac.

In most cases the compression is so great as to interfere with the normal peristaltic action of the intestines, thereby producing constipation. Compression in any part interferes with physiological functions, therefore we arrive at the following conclusions:

1. The normal breathing of woman is like that of man-abdominal, tight lacing changes the types to costal.[1]

2. The pelvic organs normally make a considerable excursion with each respiration.[2] Tight lacing in the upright position checks this motion almost entirely.

3. Sitting or leaning forward lessens intra-abdominal pressure.[4] Tight lacing in these positions greatly increases intra-abdominal pressure.[5]

4. The uterus is displaced downward by tight lacing from one to two and a half inches. The pelvic floor is bulged downward and the circulation rendered sluggish.

5. Uterine development is greatest from the twelfth to sixteenth year. Tight lacing is usually commenced at this the period of the beginning of uterine development.

Women when asleep breathe like men; all animals, male and female, breathe alike. Mays has shown that Indian girls breathe like men, and Kellogg has confirmed this observation among several Indian tribes, among Chinese women, agricultural women and English pit-brow lassies, and civilized women who have been loosely clothed about the waist, all show the same type of abdominal breathing; and the flimsy argument that chest breathing is normal to woman because it is necessary during gestation, goes to the wind when it is shown that even in the last months of pregnancy abdominal respiratory movements predominate over the thoracic movements. The most active respiratory organ, that muscle of respiration, the diaphragm, adapts itself to circumstances, so that long distance runners in the quiescent state have least costal breathing of all classes of men.

The Egyptians, who were first in the promotion of civilization, education and art, while permitting variations in luxuries, were forbidden to introduce any new ideas of "fashions" in articles of dress tending to constrict the waist or in any way modifying the true teachings of Nature.

Africans, Indians and all other nations who wear loose clothing are almost entirely free from pelvic disorders. It is in this class of women that we find the most natural and perfect pregnancy, easiest and most natural deliveries and most satisfactory puerperium.

Any physicians who have practised medicine in the rural districts for the well developed and healthy, and later in the city for the delicate, badly nourished, poorly developed, and where tight lacing is practically universal, will be convinced that there is an explanation for the frequency of female ills in the latter, as compared to the former. There is no doubt of that fact that 75 per cent. of the women who habitually practise tight lacing, to any considerable extent, suffer from mal-development of the uterine organs, especially if the corset is worn at that period of life when uterine development is greatest.

---

[1] Wilberforce Smith, *Brit. Med. Jour.*, Oct. 11, 1890.

[2] Kellogg and Mary Putman Jacobi.

[3] Dikman.

[4] Schatz's *Archives of Gynæcology*, III. 58, IV, 1893.

[5] The Corset Question, Kellogg, *N. Y. Med. Jour.*, Nov., 1887.

It is clear to any thinking mind that mal-development conduces to diseased conditions, and practically renders physiological functions of organs incomplete and painful. Uterine displacement—that subject about which so much has been said during the past decade, and whose treatment has been so varied that, "Falling of the Womb," which is so prevalent in the minds of such a large number of women and a "hobby" for so many doctors, the main cause can be traced back to the "corset." In no other forms of mammalia, other than mankind, do we find uterine displacement or diseased conditions of the generative organs. Why is this?

Tight lacing produces mal-development and displacement of the uterine organs and appendages, thereby menstruation is affected in many ways. Amenorrhœa frequently is the result of a poorly developed mucosa and its annexa together with faultily developed ovaries—a condition which, if neglected, often leads to atrophy—or we may have congestion with long continued profuse flows. Dysmenorrhœa is a condition which I think is mainly due to mal-development of both the uterus and appendages, the nervous system and also the muscular and cellular tissues, rendering them inadequate to their physiological requirements. Cancer is a rare disease with the Indians, yet occurring frequently in civilized countries, must have its explanation in some custom peculiar to such civilization.

We are all cognizant of the fact that in the uterus there are embryonic cells which remain through life; they are considered the cause of epithelioma of the cervix, and the cervix, in 98 per cent. of cases, is the seat of cancer, local irritation being the chief cause or generator. Tight lacing produces this irritation by the downward pressure on the cervix against the floor of the vagina. To strengthen my argument I quote from Heart & Barbour: "Up to puberty the mortality for carcimona is the same, afterward the relative proportion of female to male deaths gradually rises till it attains its maximum, about the age of sixty years."

Miscarriages, lacerated cervix, weak and inefficient contractions of the uterus in labor, protracted puerperium, the result of sub-involution, may often find their true explanation directly or indirectly due to mal-development. The increased frequency of endometretis, hyperphlasia erosion, stenosis, sterility and atresia of the cervix and os, must be largely due to this cause—a large number of the para-uterine cysts, as well as papillomatous cysts of the hilum, parovarium and cysts of the broad ligaments, have their origin in these unobliterated ducts and the remains of the Wolfian bodies. Mal-development is surely accountable for this condition of affairs. Fibroid and other solid tumors of the uterus have their ætiology in mal-development of the organs of generation. This fact is borne out by Schroder and Gusserow.

The only benefit obtained in the treatment of pelvic disorders with electricity is mainly due to its efficacy as an aid to more completely developing the much abused organs. All women who have practised tight lacing complain of pain on removing the corset. This pain is due to the effort of the organs to assume their normal positions.

Goethe once said "art is art simply because it is not nature." This is borne out by referring to the figure of females who never wear the corset. Visitors cannot help observing the beautiful and natural figures of Venus de Medici with many other Roman and Grecian sculptures, and must be convinced that those noble matrons never practised tight lacing.

Are civilized customs, fashions and forms of dress more conducive to health than those of the savage? It is thought not.

"Is the savage waiting for civilization to offer him ideas and reforms in dress, or is he past it and mastering it?"—Whitman.

QUININE NOT A SPECIFIC IN MALARIA, EXCLUDING THE SIMPLE INTERMITTENTS.*

By JAMES VAN MARTES, M.D.

The author opened his paper with the statement that there is a vast difference between the action of quinine in intermittent and in continued malarial fevers. He stated that it was high time that a protest be made against the general acceptance of the views concerning the specificity of quinine in malaria taught by Osler, Thayer and other northern clinicians. He holds that there is more than one variety of parasite present in æstivo-autumnal malaria.

As to its prophylactic use, Dr. Van Marter directs attention that quinine cannot be taken indefinitely the year round in doses sufficient to kill the parasite as fast as it develops, and the various peoples in different countries specially subject to malaria have adopted different measures to prevent infection which prove better for long continued use.

In some parts of Italy a strong decoction of fresh lemons will prevent infection; in other parts, the continual use of small doses of arsenious acid acts well; while in India, Assam and Cochin China, the natives working in the rice fields and subject constantly to severe infection, find that opium will prevent malaria where quinine fails. This is very suggestive, being far better evidence upon which to base conclusions than the mere hypotheses of northern observers; or the passing observations of travelers, who can take quinine for a few weeks or months.

Now, coming to the treatment of malaria (I am speaking of the severe infections, leaving out intermittent fevers), is quinine a true specific? There are cases innumerable in which the patient would die did we not add other potent drugs to quinine, or for a time at least place more reliance on other drugs than quinine. Although a true specific against the plasmodium of tertian and quartan fever, it is not a specific or antidote to the parasite of the more severe continued malarias and the toxins generated by them. When the microscope has shown the disease to be malaria in any form, quinine is a specific in all patients with intermissions or with marked remissions; not so, however, where the fever is continued, or in those malarias with but little temperature.

---

* Abstract of a paper read before the Clinical Society of St. James Dispensary, Savannah, Ga., January 1, 1898.

In continued fevers toward the last stages, marked remissions are apt to occur (in mild cases); here again quinine becomes a specific. There are, however, exceptions, for it is not uncommon to see a patient with intermittent fever, to whom quinine has been properly administered, have a distinct malarial paroxysm with the ears ringing from quinine.

Quinine in African Malaria.

Dr. Plehn, a German physician, in the Cameroons, on the west coast of Africa, which is probably the most malarious region on earth, has observed that quinine is a good preventive, and the best treatment in new-comers and those not long resident in that region; but in spite of 5 grains per diem, practically all foreigners get the fever, and the large majority die of it sooner or later. In all these cases (with the exception of the hæmaturias), quinine is given in enormous doses, with calomel (which, by the way, is never omitted) and stimulants; but while the actual paroxysm is overcome by quinine (if the case be seen in time, or not too malignant), the spleen remains large, the crescents remain in the blood, and malarial anæmia sets in.

What does this observation show?

1st. That quinine is a specific against the protozoön of tertian or quartan malaria.

2d. That it inhibits, for a time, the development of the protozoön of pernicious malaria, but does not kill it; nor does it, even with quinine constantly taken, prevent its development every time the patient catches cold or is exposed to a particularly severe contagion.

3d. That quinine alone has no action on the toxin produced by grave malarias over which calomel has twice the potency (at least in full physiological doses).

4th. That quinine even as a prophylactic cannot be indefinitely taken.

5th. That quinine has no effect whatsoever on malarial anæmia (really a chronic toxæmia).

Another very interesting form of protozal malaria, beri-beri, is not cured by quinine, although slightly benefited for a time, if the febrile manifestations are sharp. In this malignant form of disease, the pigment bodies seen in our malarias are deposited in the brain and other nerve tissues; and these pigmented bodies—either before or after degeneration—produce a toxin absolutely unaffected by quinine. In the recent epidemic at the Insane Hospital, Tuscaloosa, Ala., reported by Dr. Bondurant (*New York Medical Journal*), it is stated that quinine failed in every case to do any good. It is to be regretted that special work on the etiology was not done to establish the direct relationship of the sporozoöns supposed to cause beri-beri.

Quinine Causes Haemoglobinuria.

Still another variety (more correctly complication) of malaria, hæmoglobinuria, is made worse by quinine. I believe that the great majority of those practising in countries where severe malarias exist will confirm this observation. Thayer admits that quinine never shortens an attack of hæmoglobinuria, but says it prevents a recurrence; this latter being an assertion without the warrant of experience, and I know it to be wrong. Quinine is a frequent cause of hæmoglobinuria, and after one attack, if quinine be taken, it is apt to cause the condition which Thayer says it will prevent.

In my experience the case of malaria (as proven by the microscope) in which quinine failed to cure—did not act as a specific—have been confined to two types. First, and most common, severe malaria subcontinua typhoidea (an æstivo-autumnal form), where the fever ran along for days with very slight remissions; and, second, those irregular forms, sometimes seen, where, with undoubted malaria, the fever of a continued type was low, seldom above 102°. The symptoms presented were those of profound toxæmia resembling uræmia—suppression of urine, jaundice, delirium, subsultus, without chills or paroxysms of any kind.

There are cases of both types, just mentioned, that would surely die did we not add other drugs to quinine, and a large proportion of cases for a time at least are better off without it. We must recognize that in these types we have a toxæmia to deal with, and it is just this toxæmia which I claim is unaffected by quinine.

In treating these very severe malarial toxæmias, as we see them on plantations or in the country just out of town, or in the suburbs, or in river sailors, we are placed at great disadvantage as regards doing the best possible for our patients. If these patients could be moved away from an atmosphere where constant reinfection is taking place, and taken to a hospital like the Johns Hopkins, where even the poor can obtain luxuries, and be kept under skilled trained nursing, perhaps in such cases quinine might help if proper eliminative treatment were added (for it would not without it). But how is it where the patient is in a miserable hut, or poor farmhouse, not a bathtub in miles, no clean bed linen, no decent drinking water, no chance of proper food or good nursing, and an unalterable opposition to hospitals in general? It is on such cases that we have to practice, and it is only amongst such that we see most of our severe malarias. If quinine were a specific, they would all be cured before we ever saw them. They all take plenty of quinine, dissolved in water, and with it calomel.

I have tried, in the severe cases, quinine intravenously, and must say that it does act well; it is the only way to give it in the severest forms, but it does not shorten the course of the fever; it seldoms breaks it up as it should if it were a specific.

It is beyond the scope of this paper to relate my experiences this summer and fall in the treatment of some severe cases. I am preparing a paper on the results obtained by using the formula used by Woodbridge and others in the treatment of typhoid fever. I was very much struck by the uniformly happy results obtained, and in many instances never used quinine from beginning to end of the fever—commencing it only in convalescence in two-grain doses three times a day. If practitioners around Savannah are not competent to speak on the treatment of malaria, who could be?

Quinine is Seldom Properly Administered.

It is not the amount, but the way you give it that counts. Give it with an acid if the stomach will stand it, or else in the effervescing form recommended by Burney Yeo.[1] I quote from him as follows:

"We have found the efficacy of quinine in febrile states very much influenced by its mode of administration. If we prescribe quinine dissolved in citric acid, and given in effervescence by adding it to an alkaline mixture, doses of two or three grains exert a powerful antipyretic influence far greater than that obtained by the same quantity of quinine given in the dry state. We have seen abundant reason to believe that in infective fevers, if quinine be given in saline solutions, it is the most active and reliable antitoxin we at present possess."

A strong decoction of lemon in the early morning is a very useful remedy.

A preparation for giving quinine by the mouth, of particular efficacy in many of the severe varieties, is "Warburg's tincture," and it is a most excellent medicine.

One very strange observation that I have made is worth relating. I had a patient with occasional severe attacks of malaria, who never seemed to get the physiological effects of quinine; in other words, he never had ringing in the ears. Thinking that the quinine was not being absorbed properly, although I had given it in various ways, I gave him several hypodermics by the method I shall further on describe, and failing in this, I put him on big doses of the Warburg's tincture, and, strange to say, one ounce made his ears ring. This extraordinary phenomenon has often been a source of perplexity to me, and, in reasoning about it, have come to the conclusion that something in this compound may act, in a slight measure, as an antitoxin, or in some way so modify the chemistry of the blood, as well as the activity of the glandular and eliminative system, as to give quinine a chance. It is not true, perhaps, that quinine meets with resistance in the blood which is, in some way, modified by that complicated mixture.

Warburg's Tincture.

This is a very interesting subject, upon which much remains to be known.

Warburg's tincture should be given, as recommended by the experienced practitioners in India, after a brisk purge, undiluted, in doses of half ounce, all drinks withheld, repeated in three hours, and the patient carefully rolled up in blankets to encourage the profuse aromatic perspiration which follows. It is one of the most powerful diaphoretics known; it is also diuretic, stimulant and purgative. I always follow its use by opium and small doses of whiskey; never omit the opium, which I believe acts most happily. Recently I have used the powdered Warburg's tincture, put up in elastic capsules by Parke, Davis & Co., an elegant preparation, far more agreeable to the patient than the liquid; but I am far from convinced that it compares to the liquid preparations obtainable in England, for our American preparations of the liquid do not act as well as the English.

Quinine by the rectum I do not favor. Inunction is a very uncertain way of giving it; but of the hypodermic method I am a great advocate. In giving quinine subcutaneously, let me urge you to use it in free solution, and not stick to your small hypodermic syringes. I am now using what is usually called an "antitoxin" syringe, with a 16 Cc. capacity. By making a very dilute solution more quinine is promptly absorbed, and there is absolutely no danger of abscess or painful inflammations. You should not use an acid to dissolve the quinine, as is advised by most writers, for it is not necessary, and is very painful. The dihydrochlorate and hydrobromate of quinine are the two salts best adapted for such use, and also for intravenous injection. The water should be hot, about 100° F., and the needle sharp. Whenever, in any case of malaria, the gastric symptoms are marked, and this is frequent, use the hypodermic method in the commencement. You are then sure that the patient is getting all the quinine you want him to have promptly and without additional burdens on the stomach. I have never seen but two abscesses (and they were not in my practice) from hypodermic injections of quinine; one due to an excess of acid, the other to a filthy syringe. Do not inject in the arms. The belly wall is a very handy place to inject your solutions, and never bothers the patient like it does in the thighs or back. Use from 8 to 10 grains at each injection, and if the quinine does not work promptly, do not pin too much faith in it, nor that absurdity called the "therapeutic test"—a relic of barbarity.

---

[1] Burney Yeo, *Clinical Therapeutics*, Vol. II, page 637.

Intravenous Injection Not Difficult.

I find a good deal of hesitation amongst many physicians as to the use of intravenous injections of quinine. They fear its difficulty, slipping up in asepsis or admitting air in the veins—all points easily avoided and overcome. Having been brought up, you might say, on this method of using quinine, and having seen its development in the Santo Spirito Hospital, Rome, in the service of Baccelli, I have had very good opportunities of seeing it practised.

We get by an ordinary injection what, for the blood, is a very large amount (15 grains), and I honestly believe that if we could see our cases early enough, all cases of pernicious malaria of a fulminating type could be saved. But, alas! we seldom see them early, for such cases come in town from the country "in extremis"—this, at least, is the common experience in Rome. Once the plasmodia have had time to fully manufacture their toxin, it is too late to rely on quinine. As, however, I have seen several cases recover after intravenous injections in the last stages, you may well ask how it is that they did not die too. I attribute a good share of some (not all) the recoveries to the happy effects of quinine, but some are due to the salt solution injected at the same time. It has never yet been done by control experiments, but I have no doubt that if you gave some of these cases a large intravenous injection of normal salt solution, say 20 ounces, and no quinine, you would get as good results as you could by quinine. I know, from experience, that this will start secretion in the kidneys, the only channel by which the poison escapes in this condition. Any observing man whose misfortune it has been to have a number of severe pernicious malaria cases in his practice, will agree with me that if you can set up diuresis, sweating and purging, while vigorously stimulating the patient, he is apt to live, quinine or no quinine; on the other hand, without this, but all the quinine you please, the patient will die. This is the common experience with every poison, from malaria to rattlesnake bite.

Let us not say a thing is so because the books written by great teachers say it is so. The last words have not yet been spoken on the specific action of quinine in malaria (in our climate), and *the* book on malaria has not yet been written.

I feel confident that many will agree with my views on this subject.

Conclusions.

To summarize briefly, my conclusions are:

1. As a preventive, quinine will not do for those who are compelled to live indefinitely in a severe malarial climate; in time, it will act as a vasomotor poison.
2. Quinine acts nearly as a specific in all malarial fevers characterized by intermissions or well marked remissions, but fails in the continued fevers, those with typhoid-like symptoms, those malarias without temperature, and the cachexias and anæmias due to malaria.
3. Proving thus that quinine is a poison to the plasmodium itself, but useless against the toxin manufactured by it.
4. Warburg's tincture, in the last condition, has an action, not yet understood, on the toxin (or the eliminative system), by which the system is put in condition to benefit by quinine.
5. Quinine should never be used in hæmoglobinuria, or given subsequently, to one who has suffered from it, being liable to bring about a recurrence of the condition.
6. Only those living in regions of severe malarias can become competent to settle these questions pro or con.

GLYCERINATED CALF LYMPH.

Dr. Gubb points out (*Brit. Med. Jour.*) that the introduction of this extremely useful innovation was due to Dr. W. C. Grigg, of Queen Charlotte's Lying-in Hospital, who called attention thereto in a short article in the *British Medical Journal*, of April 14, 1888, page 792, entitled "A Mode of Obtaining Vaccine Lymph Without Puncturing the Vesicles." His plan consists in placing a drop of glycerine in the center of each vesicle, whence, by a process of osmosis, the lymph is extracted through the unruptured skin of the vesicle. This plan, simple in operation and excellent in practice, avoids the risk of an admixture of blood, etc., with the lymph, and also obviates the small but still tangible risk to the infant of erysipelas and sepsis.

PROGRESS OF MEDICINE.

THE SERUM TREATMENT OF YELLOW FEVER.

In a lecture delivered before the Society of Medicine and Surgery, of Sao Paolo, Brazil, on March 8, Dr. Sanarelli gave an account of his experiments in the serumtherapy of yellow fever. He gave no details as to the preparation of the serum beyond the statement that it is based on the methods and general principles of immunization, and is distinguished from that of better known serums only by the exceptional difficulty with which animals tolerate strong doses of the virus, and can be made capable of supplying a serum possessing trustworthy curative and preventive properties. Such a serum (*Brit. Med. Jour.*) can generally be obtained from horses after intensive treatment carried out continuously from twelve to fourteen months. The serum can act effectively only when the quantity of poison already formed in the organism has not reached the amount required to kill the patient. It acts only against the microbes, and not against their toxins; hence, in the treatment of yellow fever in the human subject, it is efficacious only when it is used in an early stage of the disease. When the toxin has profoundly affected the renal apparatus or the central nervous system, the serum can have no beneficial effect.

At the beginning of the present year Dr. Sanarelli had obtained a supply of good serum from two horses, one of which had been under treatment for eighteen months, the other for a year. This serum was tried at his request by Drs. Seidl, Fajardo, Couto and Da Rocha in the Hospital of S. Sebastiano, Rio de Janeiro, in 8 cases of well-marked yellow fever; 5 of the patients were in the fourth day of the disease, and anuria and in some cases delirium was present. Only 1 of these recovered. It is noteworthy that this patient who received 80 c.cm. of serum, although in an extremely grave condition, had not either anuria or delirium. Of the other 3, 1 was in the second, the others in the third day, and they presented all the principal symptoms of yellow fever, including albuminuria, but the urinary excretion was regular and the nervous system was intact. All these 3 recovered after "energetic serumtherapeutic treatment," the thermometric records showing that each injection was followed by a lowering of the febrile temperature. In the case in which the treatment was begun on the second day of the disease a single injection sufficed to cause an immediate fall of temperature, with abatement of the symptoms, followed by rapid convalescence. These results appeared to Dr. Sanarelli to warrant the hope that by early treatment it would be possible in many cases to control the infectious process.

In February he had an opportunity of further testing his method in the city of S. Carlos do Pinhal, where yellow fever was so prevalent that the place was almost deserted. When he arrived at S. Carlos there were only two children in the isolation hospital, which, owing to foolish prejudice, was avoided by the people. One child was in the second, the other in the third, day of illness. The results of the treatment were almost immediate; the fever disappeared, the general symptoms abated, albumen was no longer present in the urine, and the two little patients were speedily convalescent, one having received 20, the other 65 c.cm. of the serum. Of six other patients treated two died, one on the tenth day from the unexpected development of cerebral lesions; the other was already suffering from suppression of urine when admitted to the hospital. In this series of cases it was noted that if the first injection did not cut short the infective process almost at once, the disease ran its course without being influenced by further administration of the serum. The effect of the serum on the urinary function was most markedly beneficial, even in the cases which proved fatal.

The striking effects of large doses injected into the superficial veins of the forearm led Sanarelli later to employ an intensive treatment from the beginning. This method gave much more satisfactory results. He tried it in 14 cases, all selected as well-marked examples of the disease, in which spontaneous crisis was very unlikely. Of the 14 cases 10 were cured, the influence of the treatment being abundantly manifest in the immediate relief of symptoms and amelioration of the general state. In all the 4 cases which proved fatal exceptional conditions (malnutrition, malarial cachexia, etc.) are stated to have been present, and made it impossible fullly to carry out the treatment.

Thus of 22 cases in all treated by the serum 5 died. Sanarelli is careful to guard himself against basing general conclusions on so slight a statistical foundation, but having regard to the facts that the epidemic was of a very severe type, that in the first series he was, as it were, groping his way to the proper dosage, and that some of the cases treated were hopeless from the beginning, he thinks an average mortality of only 27 per cent. of good augury for the future. The official statistics of the capital of Brazil show that in epidemics of moderate intensity the mean mortality is about 50 per cent. When abundant supplies of serum more active than the present stock, which is now almost exhausted, are available, and a more extended practical experience has made it possible to determine the indications and contraindications of the treatment more accurately, still better results may, he believes, be looked for.

The prophylactic power of the serum has as yet been tested only on a relatively small scale, but the success of the method was very encouraging. An outbreak of yellow fever occurred in a prison in S. Carlos do Pinhal, and in spite of isolation and disinfection was making steady progress. The "antiamarillic" serum was injected into all the prisoners and warders, with the result that not a single case occurred afterwards.

Dr. Sanarelli has already made mankind his debtors by his persevering efforts to combat one of the worst diseases of warm climates, and it is to be hoped that he will be able to carry his labors to a successful conclusion. The Brazilian Government and the authorities of the State of

S. Paolo are also to be congratulated on the enlightened spirit in which they have encouraged and helped the distinguished investigator in what is in the fullest sense of the words a work of mercy.

SEMINAL VESICULITIS AND PROSTATITIS IN GONORRHOEA.

Swinburne (*Amer. Journ. of Cut. and Genito-Urinary Diseases*, March, 1898) thinks that these complications of gonorrhœa occur oftener than is suspected, and require special treatment. He quotes three cases which, after prolonged and ineffectual treatment for chronic discharge, cleared up when the state of the vesiculæ was found and treated. The author's conclusions are as follows: (1.) In chronic urethritis and at the end of prolonged urethritis, or when the posterior urethra is affected, the seminal vesicles and prostate should always be examined. (2.) When epididymitis has ocurred seminal vesiculitis is very apt to occur also. (3.) Tuberculosis conditions should be excluded if possible, for the treatment may render the condition worse. (4.) The treatment consists in expressing the contents of the vesiculæ by the finger passed above the prostate *per rectum*. (5.) Expression of the contents of the vesiculæ is a good test for sterility, to determine whether the ducts between the testis and the seminal vesicles are patent.

THE TREATMENT OF TETANUS.

Heddaeus, of Czerny's Clinic (*Munch. Med. Woch.*, March 29, 1898), relates a case of tetanus of moderate severity secondary to a wound of the arm. Here local spasm in the arm preceded trismus and general spasm. The serum treatment appeared to be of service in this case. The author then gives details of two typical and very severe cases of cephalic tetanus both treated with Behring's serum. The first patient was aged 45 years, and the trismus appeared on the fourth day. The wound of the face was so extensive as to make it almost impossible to say when the facial paralysis commenced. The serum was injected into the veins of the arm on the fourth day, and was repeated five days later, when an exacerbation in the symptoms occurred. Heddaeus believes that there is evidence to show that in this very severe case the early injection of the serum was the means of saving the patient's life.

In the second case, of a man aged 28, the wound in the face was insignificant. In five days the first symptoms developed. On the sixth day the site of the wound was thoroughly excised and 5 per cent. carbolic acid applied. The tetanus antitoxin was injected on the following day, also into the veins of the arm. The patient died on the following day. This case belonged to the severest, the symptoms developing with great rapidity. Summarizing the results in these three cases the author says that in the first case improvement did not follow immediately upon the injection, but only after some hours. In the second case there was an arrest of the symptoms after the injection, and then improvement. Later the patient became much worse, but subsequently recovered. Between the first and second injections the wound was well cleaned.

In the third case there was a short lull in the disease after the injection, but then the patient became worse and died. Here the serum was used late and in too small quantities, so that this case is rightly excluded in estimating the value of the serum treatment. Heddaeus says that, so far, he has reason to be satisfied with the results of this treatment. With the exception of one case treated with opium, all the twelve cases treated during the past twenty years in the clinic have died. The following conclusions are drawn: (1) Behring's tetanus antitoxin is an efficacious remedy of a specific character, and should be used at the earliest possible moment. (2) The earliest destruction of the infected area must not be omitted, as from it a permanent supply of toxin is provided. (3) The symptomatic treatment with sedatives, including narcotics, should go hand in hand with the serum treatment. (4) Other means of eliminating the tetanus poison should not be neglected. (5) Preventive serum treatment deserves further consideration.

THE TREATMENT OF CARBOLIC ACID POISONING.

An unfortunate policeman has been taken severely to task by an anonymous correspondent of a Liverpool paper for having administered to a young man suffering from what proved to be a fatal dose of carbolic acid, an emetic of mustard water. In an editorial article on the subject the *British Medical Journal* says: We fail to see that the conduct of the constable is deserving of censure. It can hardly be expected that in addition to their other duties the members of the force should qualify as expert toxicologists; moreover, the prompt evacuation of the contents of the stomach in such cases is in accordance with the teaching of the best authorities. Whether mustard and water is given as an emetic, or sulphate of zinc, or ipecacuanha wine, or even a hypodermic injection of apomorphine, is a mere matter of detail. A soft India rubber tube, introduced with care and caution, might be better, but such an apparatus is not always at hand, and certainly requires some skill in its application.

Poisoning by carbolic acid is becoming daily more and more common, a circumstance attributable in great part to the fact that it is the poor man's disinfectant. When there is a bad smell in the house, or the drains have "gone wrong," a supply is obtained from the nearest grocer, often in a ginger-beer bottle, to which it is not thought necessary to affix a label. If there is any left over, it is put away on a shelf for a future use, where it remains forgotten until some inquisitive person discovers it and investigates its contents with disastrous results.

The symptoms are so characteristic that they cannot well be mistaken. An intense burning sensation is experienced in the throat and stomach almost in the act of swallowing, and the lips and mouth are whitened where the acid has come in contact with the mucous membrane. Vomiting may occur, but from the anæsthetic action of the poison on the gastro-intestinal tract is often absent. Respiration is labored and hurried, and symptoms of collapse are very marked. The urine is diminished in quantity, and is frequently of an olive-green color, due to the conversion of the carbolic acid into hydroquinone, and the subsequent oxidation of the latter into a brownish product.

It has been found that in poisoning by phenol the sulphates are absent from the urine, and this has given rise to the custom of administering soluble sulphates with a view to the conversion of the carbolic acid into harmless sulphocarbolates. The treatment commonly adopted is to give an ounce of Epsom or of Glauber's salts in half a pint of water, and then to administer an emetic of mustard or sulphate of zinc. In the absence of the specific antidotes mustard and water is by no means a bad remedy. Saccharated lime, white of an egg and castor oil or olive oil are also useful, but the point to remember is that time is all important, and the best remedy is that which can be most speedily procured. The after-treatment consists in the administration of stimulants, such as hot brandy and water, chloric ether, and sal volatile, with the application of warmth to the extremities.

As to the dose of carbolic acid which may be fatal, a rather interesting discussion has taken place at Berlin. (*Deut. Med. Woch.*, April 21.) A man died, after presenting indefinite symptoms. At the post-mortem examination the cerebral sinuses were found to be distended and the brain substance congested; the heart showed signs of fatty degeneration, particularly on the right side. The life insurance company to which the patient belonged was not satisfied with the result of the examination, and the stomach was sent to an analytical chemist, who suspected carbolic acid poisoning from the smell of the stomach contents. The chemist, however, only succeeded in obtaining 0.6595 g. of carbolic acid. The body was exhumed after eleven days, and the kidneys, brain and liver were examined for carbolic acid. The total amount found only amounted to 1 g. Professor Lewin, of Berlin, who was consulted on the subject, expressed the opinion that it was impossible for a man to be poisoned by 1 g. of carbolic acid. In his *Toxicologie* he gives from 8 to 60 g. as a fatal dose. No lesions were found in the alimentary canal in this case, and Professor Lewin asserts that the patient could not have swallowed a solution stronger than 4 per cent. without producing some signs which could be recognized after death. Professor Lewin admitted that sometimes death might be caused by the poison acting directly on the nervous system, but 1 g. would not be sufficient to produce this effect.

AN EARLY SYMPTOM OF MEASLES.

Slawyk, of Heubner's clinic (*Deut. Med. Woch.*, April 28, 1898), draws attention to the eruption present in the mouth during the early days of measles, first described by Koplik. It consists of shining red spots, in the middle of which there are very minute bluish-white efflorescences. Slawyk says that Koplik's spots have not received the attention which they deserve, and that they represent an absolutely trustworthy and early indication of the disease. During last winter an epidemic of measles broke out in some of the clinics of the Berlin Charité.

These cases, along with those of Huebner's clinic, numbered 52 cases, and in 45 of these Koplik's spots were observed. In 2 of the remaining cases the patients were too ill to permit of a satisfactory examination of the mouth. The spots appeared on the mucous membrane of the cheek and sometimes of the lips. They are mostly few in number. A bright light is necessary, as they are not visible in a yellow light. They practically never run together. They are distinguished from thrush by their color and their rounded contour. They may be picked off with the forceps without pain or bleeding, and they are then seen under the microscope to consist of large masses of epithelium undergoing fatty changes. They have not been observed in other acute illnesses. In every case where they were seen the measles rash followed, so that whenever they were present the child was at once transferred to the measles ward. Koplik's spots appear on the first or second day of the disease, and increase in numbers up to the time of the skin eruption; they usually further remain for three or four days, so that they last from three to six days. They produce no discomfort.

In some cases of measles followed by a stomatitis they were absent. No prognostic significance can be attached to them, as they were present both in mild and severe cases. Details of 8 illustrative cases are given.

ANIMAL ODORS.

The lamentable accident which occurred the other day, resulting in the death of a little child from injuries received while driving in a brougham with his nurse, raises several other questions than the obvious and pressing one of the control of street nuisances, says the *British Medical Journal.* The horse in the brougham was frightened by the smell of a performing bear which was being led along the street, ran away, the brougham collided with a wagon and was upset and the child was killed. Horses are well known to be disposed to fits of unreasoning fright, and no horse unless carefully trained can bear the smell of two animals—namely, the bear and the camel. The smell of the latter is offensive enough to human nostrils, but this would not explain the terror which a horse exhibits at first sight or smell of a camel. But the reason for the horse's dread at the smell of a bear must, we suppose, be found in a reminiscence continued through the race from the time when the cave bear fed upon the primitive horse. In the case of the camel, it cannot be simply that the smell is disagreeable to the horse, for horses have no objection to goats, the smell of which, though not so offensive as that of a camel, is very similar in character. And, on the other hand, it cannot be, as in the case of the bear, the fear that the camel will do some harm. Animal odors, both human and otherwise, form a curious chapter in medical lore. In the *Journal of Cutaneous and Venereal Diseases* for July, 1885, appeared an abstract of a prize essay by Dr. Monin, "Sur les Odeurs du Corps Humain," which contained a vast amount of information on the subject. It is well known that individuals of the same race possess various smells. For instance, the smell of red-haired people is often very offensive, a fact noted long ago by Ambrose Paré. The strong smell of the negro, too, has often been commented upon by travelers. Alexander the Great was said by Plutarch to emit a smell of violets, and several gynæcologists have noticed the peculiar aromatic odor, in no way offensive, given off by certain women during the menstrual period.

A PHYSICIAN PROMPTED COLUMBUS IN THE DISCOVERY OF AMERICA.

Prof. De Lollis, who is well known by his researches on Christopher Columbus, published under the auspices of the Italian Minister of Public Instruction, has, it appears, satisfied himself, from his close study of the original documents, that while to Columbus belongs the honor of having actually discovered America, the existence of the great western continent, and the way of reaching it, were first definitely suggested to him by a Florentine named Paolo Toscanelli dal Pozzo, who had taken the degree of Doctor of Medicine at Padua.

Toscanelli's name has indeed been mentioned as having confirmed Columbus in his ideas as to the existence of a great undiscovered continent, and when the 400th anniversary of the discovery of America was celebrated in 1892 he came in incidentally for a small share of glory. Neither on this nor on the other side of the Atlantic, however, did his name appear in the programme of the official demonstrations. This omission is now to be rectified to some extent. On April 17 the fourth centenary of Toscanelli and Amerigo Vespucci is to be celebrated with much pomp and circumstance at Florence.

Toscanelli deserves to be remembered, for it is clear from the evidence produced by De Lollis that without Toscanelli's instructions Columbus would never have gone to seek the East by way of the West, and consequently would not have stumbled on the discovery of America. Columbus went in 1476 to Portugal, where at that time the scheme of a transatlantic route had already attracted the attention of the King and his geographers. The moving spirit was Fernan Martins, Canon of Lisbon—himself also a doctor of physic, who had lived some time in Italy, where he had made the acquaintance of Toscanelli. At the suggestion of Martins, Toscanelli wrote to the King of Portugal a letter dated June 25, 1474, in which he refers to the scheme discussed between them at a previous time for reaching the "land of spices" by a shorter road along the coast of Guinea.

In this letter he enclosed a planisphere, illustrating his conception of the world as a sphere, and showing how it could be circumnavigated. Columbus placed himself in communication with Toscanelli some time between September, 1479, and August, 1481. He asked the Florentine physician for information, and Toscanelli, in his reply, after referring with approbation to his wish to reach the land where spices are produced, refers him for an answer to his question to the letter and the map which he had sent in 1474 to Fernan Martins. Columbus wrote to him a second time, and in his reply Toscanelli used the following expression:

"I perceive your great and magnificent wish to reach the East by the West in the manner shown by the map which I sent you;" and he expressed his satisfaction that the map had been understood, and that the project referred to was looked upon as not only possible, but certain. Columbus copied with his own hand Toscanelli's letter, and he quotes it in the log of his first voyage, and again in that of his fourth and last. He admits that from this passage he had drawn the arguments which decided the King of Spain to fit out the expedition. Columbus also took Toscanelli's map with him on his voyage. Toscanelli died in 1482, and thus had not the gratification of seeing how the aspiration which he gave bore fruit, though in a way which he had not foreseen. It is an interesting fact that two doctors of medicine should be so closely associated with the discovery which has made the name of Columbus immortal.—*British Medical Journal.*

RENAL CALCULUS DETECTED BY X-RAYS.

At a recent meeting of the Clinical Society of London, Dr. Frederick Taylor and Mr. A. D. Fripp reported a case, the points of interest in which were: (1) The indication given by a skiagraph of the position of a renal calculus that had previously escaped detection by the lumbar exploratory operation; (2) the abnormally high position of the stone—above the twelfth rib, though on the right side; (3) the fact that the twelfth rib had its deep surface covered to a large extent by pleura, even on the right side; (4) the completely atrophied condition of the kidney. The patient was a man, aged 26. He was admitted into Guy's Hospital on September 8, 1897, under Dr. Taylor. There was a history of attacks of mild colic for nine years, and the symptoms and signs while in hospital pointed clearly to the diagnosis of a right renal calculus, but Mr. Fripp was unable on October 18 to detect the kidney through the usual lumbar incision. A week later, guided by a skiagraph, he was able by reopening the wound and removing part of the twelfth rib to reach and remove the stone from its abnormally high position. It weighed exactly half an ounce, and was the size and shape of the distal segment of a small thumb. It was surrounded by a cyst consisting partly of pelvis of kidneys and partly of atrophied kidney substance. This was removed as well. The patient made an uninterrupted recovery, and had since resumed the active life from which he had been debarred for nine years by the colic.

The president, Mr. John Langton, observed that the symptoms were classical, except for the absence of hæmaturia. He saw a few months ago in St. Bartholomew's hospital a skiagraph of a renal calculus *in situ;* but the stone in the case was larger, with processes extending into the calyces, while the kidney itself was atrophied. The fact that the stone was high up behind the twelfth rib and on the right side doubtless rendered it more difficult of detection by X-rays. He remarked that frequent micturition was a common symptom of calculus, even when the stone was in the kidney, and not in either ureter or bladder. The density of the skiagraph varied with the different kinds of stone (as Mr. Fripp's photographs showed), being densest with oxalate of lime, slightly less dense with uric acid, less still with phosphatic stones, and least of all with intestinal concretions, such as biliary calculi. He had tried to skiagraph cases of renal calculi, but had failed.

Mr. Makins said that was the experience of most surgeons. In one case, where there were sixteen calculi in the kidney, no indication of them was shown on the plate. The existence of a renal calculus could not be excluded because the plate gave no indications.

Dr. Barry Blacker had examined many dozens of cases of supposed renal calculi, and in 3 only did the plate show that possibly a stone was present. It was impossible to say what was the condition of a tube requisite to ensure the obtaining of a skiagraph of a stone in the kidney.

Mr. Fripp, in reply, said that earlier attempts to skiagraph this calculus were not successful, whereas the last attempt succeeded, whereupon the stone was at once removed.

GYNAECOLOGICAL EXAMINATION OF WOMEN RECENTLY CONFINED.

Doléris (*Bull. Soc. Obst. et Gyn. de Paris*, No. 3, 1898) dwells on the importance of a careful vaginal examination during the puerperium before patients are discharged from the medical attendant's care. He believes that a large proportion of such patients carry away from their confinement the seeds of most of the pelvic troubles to which they are subject later on. Examination is specially necessary when the puerperium has been attended by any signs of infection, and should embrace (1) bimanual examination; (2) inspection of the vulva, vagina and cervix; (3) investigation of traumatic lesions of the cervix and of the condition of the cervical mucosa; (4) culture examinations of the cervical secretions; (5) catheterization of the uterine canal, with dilatation if necessary. This will often show the presence in the uterine canal of an abundant brownish or creamy liquid, in which in infectious cases pathogenic micro-organisms are constantly found.

The infective condition, which is often complicated by displacements and sub-involution, should be vigorously treated before the patient leaves hospital or her home. Intrauterine irrigation and drainage should be combined with hypodermic injections of ergotine. In cervical lacerations with eversion, applications of creosote and glycerine (1 in 5) and insufflations of iodoform answer well. The author further recommends the daily injection of 100 to 200 c.cm. of artificial serum as a stimulant and tonic agent. For displacements he employs the Hodge pessary in the case of retroversion, and the use of tampons for several weeks in cases of prolapse and colpocele. Treatment on these lines is prophylactic, and will avert many subsequent troubles and more serious complications.

SALICYLIC ACID IN PNEUMONIA.

De Becker (*Ann. et Bull. de la Soc. de Med. d'Anvers*, An. LX, February-March) has for the last two years treated pneumonia with salicylic acid. The first case in which he tried it was that of a little girl, aged 4 years, with pneumonia of the left apex and a pneumonic focus at the lower angle of the right scapula. During five days he treated her with digitalis, blisters, etc., but the physical signs did not alter, dyspnœa became worse, and weakness increased. He then changed the treatment to 10 centigrammes of salicylic acid every hour, and after the first doses the tongue became clean and a cough developed, which cleared the lung in twenty-four hours. Three days later the patient's elder sister contracted pneumonia, but the attack was cut short in two days by the same treatment.

De Becker has since treated in the same manner twelve cases of acute pneumonia, all of which were rapidly cured, except one in which death was due to the sudden onset of meningitis. He explains the effect of the salicylic acid partly by its antiseptic action, partly by its producing dissociation and early liquefaction of the hepatization products, and by its setting up cough, sometimes accompanied by violent efforts. The expectorated material is liquid and to the naked eye appears to consist of nothing but blood. The acid, therefore, he thinks, does rapidly what Nature often has a great difficulty in doing, taking so long about it, moreover, that the heart fails under the prolonged strain to which it is subjected. As regards dosage, in the case of children 10 centigrammes are given every hour, or in the very young every two hours; in adults 50 centigrammes every two or three hours; in the aged the same amount every three or four hours, regard being had to the state of the heart.

The dose must be adjusted to the condition, the guiding symptom being the expectoration; as soon as this is free the dose should be diminished. De Becker finds that the acid is best given dissolved in a little hot water, a good quantity of jam or honey being added. Coffee, chocolate, and even diluted milk are also good vehicles. Cardiac disease and extreme weakness are contra-indications. He believes that if salicylic acid is given early (first or second day) it will be found a true abortive of pneumonia.

BUTTERMILK.

A prescription of buttermilk might be rejected on account of its simplicity, but with some patients it will be considered very grateful. Its therapeutic value ought to be considered, and it may be given in many cases as a food, in some as a relish, and with others as a means of cure.

Papers have been written upon it, one by Henry D. White, M.D., in the New York *Medical Journal*, in which he relates a case of Bright's disease, in which after the ordinary remedies no relief was obtained. The patient finally, of her own solicitation, used buttermilk with the happiest results: In the same journal another case of Bright's disease, with phenomenally large quantities of albumen, in which iron, pilocarpin, jalap and other drugs were given. The patient began trying buttermilk; two quarts a day. Its effects being marked, the quantity was increased finally to six and eight gallons a week, with diminution in the quantity of urine passed. Constipation and headache invariably followed upon withdrawal of the buttermilk. An examination of the urine made one year and nine months after the first observation revealed the fact that minute quantities of albumen were still present.

Buttermilk may be used for its laxative and diuretic properties. It has been used with benefit in cystitis, and in all diseases of the urinary organs where soothing mucilaginous drinks are indicated, where an increase of the flow of urine is desirable, and to soothe inflamed and congested mucous surfaces.

Again, in affections of the digestive organs buttermilk may be advantageously given. Dr. S. M. Ward says (*Therapeutic Gazette*), "where there are eructations and vomiting, where there is atrophy of the peptic gland, in that condition known as 'sick stomach,' vomiting of peritonitis, vomiting of pregnancy, etc."

Dr. Ward says when buttermilk is to be used therapeutically it should always be freshly prepared. "This is not in exact accord with my experience," says the editor of the *Dietetic and Hygienic Gazette.* "I have had cases when it acted better when it was a week old or more. The whey from old buttermilk, where the caseine is entirely eliminated, has been a good remedy in many cases.

"The whey from fresh buttermilk in cases of cholera infantum, made ice-cold, will often do well in checking vomiting and diarrhœa, as well as nourish the patient when other things have failed. It should be given in small quantities, repeated often in such cases. In some cases it is better tolerated by making it alkaline, by the addition of bicarbonate of soda."

DANGERS OF PICRIC ACID IN THE TREATMENT OF BURNS.

C. Willems, of Ghent (*Ann. de la Soc. Belge de Chir.*, An. VI, No. 2, May 15), points out that picric acid is really of use only in burns of the first and second degrees. The special action of the acid is to favor the growth of new epidermis. In such superficial burns the utility of the agent, he holds, is beyond question. By means of it he has seen extensive burns of the face and limbs heal with great rapidity. Epidermization takes place so quickly that no suppuration occurs. Another advantage of the picric acid is its marked analgesic property.

In burns of the third degree Willems finds the acid much less useful; it does, indeed, check suppuration, but it has no effect in quickening granulation. As in practice, however, these three degrees of burns are generally present at the same time, the acid may with advantage be used at first, as it soothes the pain and rapidly heals the superficial lesions; an antiseptic can then be substituted for the treatment of the granulating surface. The pain and the toxic accidents which have been placed to the discredit of picric acid are to be attributed to the use of too strong preparations. Willems points out that a saturated watery solution has generally been used, compresses soaked in this being applied to the wound and allowed to dry on it. He points out that picric acid is dissolved in water in the proportion of only about one-half per cent. In cases reported to the Surgical Society of Paris not long ago as proving the serious disadvantages of the treatment by this agent, solutions of 5 per cent. and 10 per cent. appear to have been used. Willems contends that it is unfair to condemn an agent for effects due to its misuse. Willems himself uses the acid in vaseline ointment of the strength of 1, or at most 2, per cent.; 15 g. of this spread upon lint make a dressing suitable for a vast burn. Although most of his patients have been children, he has seen no sign of toxic effect, and the pain, when there was any, was slight and transient. The sole drawback is the yellow discoloration of the skin which the acid produces. This can be got rid of by repeated washing with alcohol, or with carbonate of lithine diluted with water.

THERAPEUTIC HINTS.

ARE TABLET TRITURATES OF DIGITALIS PREPARATIONS INERT?—Dr. Judson Daland read a paper before the Philadelphia County Medical Society some time since reporting some observations which tended to show that the fluid preparations of digitalis became inert when manufactured into tablets. Dr. E. M. Houghton, of the Detroit College of Medicine, has carried out an extensive series of physiological experiments, the results of which indicate (*Therap. Gazette*, April 15) that active fluid preparations of digitalis do not lose in activity by being manufactured into tablets, nor do the tablets become less active by keeping than do the other preparations of digitalis.

A point worthy of serious consideration is the variability in the quantity of active constituents in different samples of crude digitalis as shown by physiologic examination. The lack of action manifested by the tablets prepared for Dr. Daland may have been entirely due to an inactive drug having been employed for making into the tincture. The pharmacist may easily be deceived as to the active qualities of the crude drug digitalis, procured on the market for his preparations, as he cannot rely upon the physical appearances as being the correct criterion of strength, and he has no way of making a chemical assay. The only way he can guarantee that his preparations of the heart tonics are physiologically active is by an actual test on animals, or by a clinical experiment. The latter method, of course, should never be employed, as the reaction of animals to the heart tonics is positive.

VOMITING OF PREGNANCY TREATED BY OXYGENATED WATER.—Gallois and Bonnel (*Bull. Gen. de Therap.*, March 23, 1898) reported to the Société de Thérapeutique the results of this treatment. Hayem and Pinard had advised inhalations of oxygen for the same purpose; but as the oxygen could not always be procured in gaseous form, they tried water containing ten or more volumes of oxygen gas (peroxide of hydrogen, H_2O_2). They administered a tablespoonful in a litre of water, given with wine and drunk during meals. They note that two tablespoonfuls of oxygenated water to the liter leads to an unpleasant metallic taste. They do not think the cure results from suggestion, because it did not follow when the dose employed was a teaspoonful to the liter. As a rule, cure is complete in two or three days. Vomiting due to gastric disease is not improved, nor has the treatment any effect on heartburn. In pure cases of vomiting of pregnancy they had only two failures. The method was also tried with success in the vomiting of phthisis.

Passive Movement in Nervous Diseases.—In a recent article on the therapeutical value of movement in diseases of the nervous system (*Deut. Med. Woch.*), Professor Goldscheider, of Berlin, states that he has usually found that after employing passive movement for a short time every day, the patient is encouraged to move his limbs of his own accord, which he could not have done before passive movement was commenced. The movements become much freer and less painful if the patient is placed in a hot bath. There should be sufficient water in the bath to allow considerable movement. The hot bath treatment is said to be very grateful to sufferers from peripheral neuritis. The tremors of insular sclerosis and athetosis can be improved by a daily exercise in drawing; the cases of ataxy are benefited in a similar manner. The movement is particularly valuable in early cases where the centripetal path is still capable of conveying impulses to the cord.

Tracheotomy After the Use of Antitoxin.—Noccioli (*Gaz. degli Osped. e delle Clin.*, February 27, 1898) contributes some statistics as to the results of tracheotomy in diphtheria after the use of serum. His tracheotomies number 15 in all; of these, 7 died and 8 were cured. But for various reasons 4 of the deaths can be excluded, which brings the mortality down to 25 per cent., a great improvement on the statistics of the operation before the use of antitoxin. The author never used an anæsthetic; in all cases except one he performed the high operation. No inconvenience followed the removal of the tracheotomy tube, usually on the eighth or tenth day after the operation.

Opposed to the Treatment of Burns by Picric Acid.—It is now nearly two years since the treatment of burns by picric acid was advocated in certain French medical journals. At a recent meeting of the French Surgical Society, Walther stated that this remedy may produce in children symptoms of acute poisoning; moreover, it frequently causes so much pain that its use has to be abandoned. Others had seen untoward and even fatal results follow its use, and the general consensus of opinion was that while it might be used with benefit in superficial burns, as it often instantly relieved the pain, in deep burns, its use was contraindicated.

Oil of Eucalyptus for Obstinate Headache.—Lewis and de Schweinitz, in 1889, reported excellent results in certain forms of obstinate headache from the exhibition of oil of eucalyptus in doses of four or five minims five times a day. The editor of the *Therapeutic Gazette* has recently again directed attention to the excellent results obtained with this drug, his own experience confirming that of the authors quoted. It is particularly valuable in patients with a gouty family history and in occipital headache of the congestive type. It is most efficient in the prodromal stage.

Meteorological Influence on Epileptic Attacks.—M. W. Sokolow (*St. Petersburger Med. Woch.*, 1898, No. 15), from a number of tabulated observations, comes to the conclusion that there is a certain regularity and arrangement in the occurrence of epileptic attacks. He holds that the earth's magnetism exercises an as yet unexplained, but undoubted and constant, influence on epileptic patients as far as the disease manifests itself in fits. Further and long-continued observations are needed to clear up the subject.

VARALETTES.—This is the name given by the London house of Alfred Bishop & Sons, Ltd., to their compressed effervescent tablets. The house is an old and well-known one. We learn that it was among the first to make effervescent tablets, and that its products have always been regarded as unexcelled.—*New York Medical Journal.*

ANNOUNCEMENT OF NEW BOOKS.

Messrs. Lea Brothers & Co. announce for early publication the following books by eminent authorities. Complete catalogues of the publications of this firm may be had by addressing either their Philadelphia or New York house:

THE TREATMENT OF SURGICAL PATIENTS BEFORE AND AFTER OPERATION. By SAMUEL M. BRICKNER, M.D., Visiting Surgeon at the Mt. Sinai Hospital, New York. In one handsome volume of about 400 pages, with illustrations.

THE PRINCIPLES OF TREATMENT. By J. MITCHELL BRUCE, M.D., F.R.C.P., Physician and Lecturer on Materia Medica and Therapeutics at Charing-Cross Hospital, London. In one octavo volume.

DISEASES OF WOMEN: A Manual of Non-Surgical Gynecology, designed especially for the use of Students and General Practitioners. By FRANCIS H. DAVENPORT, M.D., Instructor in Gynecology in the Medical Department of Harvard University, Boston. Third edition, thoroughly revised and enlarged, with many additional illustrations.

A TREATISE ON GYNECOLOGY. By E. C. DUDLEY, A.M., M.D., Professor of Gynecology in the Chicago Medical College. In one octavo volume of about 600 pages, with 425 illustrations, many of which are in colors.

A TEXT-BOOK OF ANATOMY. By American Authors. Edited by FREDERIC HENRY GERRISH, M.D., Professor of Anatomy in the Medical School of Maine. In one handsome imperial octavo volume, copiously illustrated in colors.

MANUAL OF SKIN DISEASES. With Special Reference to Diagnosis and Treatment. For the Use of Students and General Practitioners. By W. A. HARDAWAY, M.D., Professor of Skin Diseases in the Missouri Medical College. Second edition, entirely rewritten and much enlarged. In one handsome 12mo volume, with illustrations.

THE PRINCIPLES AND PRACTICE OF OBSTETRICS. By American Authors. Edited by CHARLES JEWETT, M.D., Professor of Obstetrics in the Long Island College Hospital, Brooklyn, N. Y. In one handsome octavo volume, with many illustrations in black and in colors.

FAVORITE PRESCRIPTIONS.

Europhen Collodion.

De Molenes (*Jour. de Med. de Paris*) recommends the following formula as an application to wounds:

Europhen Castor oil ... of each	1 part.
Collodion	10 parts.

Silver Nitrate in the Persistent Diarrhœa of Children.

The following formula (*Clinique*, January 1, 1898) has been recommended:

Silver nitrate	1 grain.
Dilute nitric acid	5 drops.
Mucilage of acacia Syrup of orange peel ... each	4 drachms.

A tablespoonful every three or four hours.

An Ointment for Acute Articular Rheumatism.

Lemoine (*Nord. Medical*) gives the following formula:

Vaseline	25 parts.
Salicylic acid	4 "
Sodium salicylate	3 "
Extract of belladonna	1 "

To be applied and covered with cotton.

Iodoform for Broncho-Pneumonia following Measles.

The following has been recommended (*Med. Press*) for administration where the acute stage of measles has been followed by the development of broncho-pneumonia:

Iodoform	10 grn.
Cod-liver oil	4 fl. oz.
Spirit anise	30 min.

Two teaspoonfuls a day at first, increased, gradually, according to the tolerance of the child.

Eustachian Inflammation.

Block (*Deut. Med. Zeit.*) recommends the following:

Oil of cade	5 parts.
Zinc oxide	10 parts.
Green soap	10 parts.
Vaseline	10 parts.

He also applies a mercurial plaster at night.

GAILLARD'S MEDICAL JOURNAL.

A MONTHLY JOURNAL OF MEDICINE AND SURGERY

Scientia et Veritas Sine Timore.

PUBLISHED BY THE NEW YORK MEDICAL PUBLISHING CO.,
106 William Street, NEW YORK.

All communications, of either business or editorial character, should be addressed to Gaillard's Medical Journal, 106 William St., New York.

Articles for publication will be received with the understanding that they are contributed exclusively to this journal. Reprints will be furnished at actual cost, orders for which should accompany the manuscript. Authors of accepted articles may receive twelve copies of the issue in which they are published. Necessary illustrations will be furnished without expense to authors when suitable drawings or photographs are furnished.

OUR "LEPER COLONY."

THE fortunes of war have apparently decided for the United States the question of whether or not we are to have colonial possessions. A popular vote taken now would probably show that the people of the United States are by a considerable majority opposed to any policy of further territorial acquirement, but that majority is undoubtedly much smaller now than it was six months since, and at the present rate of growth of popular sentiment the majority will probably be wholly wiped out within another six months. Before this number reaches our readers the formal annexation of the Hawaiian Islands will no doubt have taken place. Leaving altogether aside the question of the expediency or the reverse, of acquiring colonial possessions outside the continent of America, it may be of interest to look at this one of our prospective possessions from a medical point of view. The "bugaboo" of the "leper colony," held up by the opponents of annexation, seems not to have proven a very terrifying object. Nor is there adequate reason for any fear that this disease may, through the annexation of Hawaii, find a foothold in the United States. Prof. Osler, of Johns Hopkins University, recently had an opportunity to deliver a clinical lecture on a case of leprosy, and he took the opportunity to make a systematic study of leprosy in North America.

He found that there are at present five foci in which this disease prevails in North America, two of which are in the Dominion of Canada. In the northern part of New Brunswick leprosy has existed in a couple of counties since the early part of the century. The cases as recognized are segregated in the lazarette at Tracadie. Dr. Smith, the physician in charge, writes, under date of January 17, 1898: "The number at present in the hopsital is 24, 18 males and 6 females. . . . Of the above number 3 are Icelanders whom I brought from Manitoba. Leprosy in Cape Breton has almost died out. With us in New Brunswick segregation is stamping out the disease. The cases have dwindled from about 40 in the early history of the disease to about half that number. One of our inmates is a negro I brought recently from St. John, N. B. He had strayed from Bermuda. Leprosy is not on the increase in Canada." In British Columbia the disease has been introduced by the Chinese, but there are only eight cases at present in the settlement on Darcy Island, and Dr. Hannington, of Victoria, does not think that the disease is spreading. Among the Icelandic immigrants in Manitoba there are a few cases, but the strong probability is that the disease will gradually die out.

In the United States there are three important centers. To "New Scandinavia," as parts of Minnesota and Wisconsin have been called, the disease was introduced by immigrant Swedes and Norwegians. Altogether more than 150 cases are known. The disease has not spread, and Dr. Bracken, the secretary of the State Board of Health, wrote January 19, 1898, "there are in Minnesota so far as is known only 27 cases, and some of these have probably died since the last return. All of them contracted the disease before coming to America." No instance of leprosy has been known to be contracted from any of these Norwegian settlers. In California leprosy has been introduced by the Chinese, and in a few instances by native Americans returning with the disease from the Sandwich Islands. The total number of cases, however, is not large, certainly not more than a dozen, and the likelihood of the disease progressing in the native American population is very slight.

By far the most extensive focus of leprosy is in Louisiana. Dr. Isadore Dyer, who was the delegate from Louisiana to the Leprosy Conference in Berlin, has reported fully on the history of the disease in that state, where it has been known since 1785. In a letter dated January 12, 1898, he states that in that paper he has given full tables "of all recorded leprosy in Louisiana since 1785, the existing acknowledged cases being separately tabulated. This last table contains 118 cases, in addition to which I have seen 6 within the past four months, making a total of 124 positive living cases to-day." Dr. Dyer thinks that this does not represent by any means all the cases, but he believes it is quite justifiable to calculate the number of lepers in this state as not less than 300. A few cases are met with in Florida, South Carolina and in others of the Southern States. Now and again cases occur in the eastern cities, invariably imported. So far as is known, with the exception of the single case recorded by Dr. I. E. Atkinson, of Baltimore, there has not been an instance in which the disease has been transmitted from one of these imported cases to a native American. Professor Osler believes that the fear of the disease spreading in the United States is altogether fanciful.

Aside from the reproach of leprosy the Hawaiian Islands offer an almost ideal sanitarium for those afflicted with the weak lungs and the tendency to tuberculosis so prevalent in New England, and when once it has come into the possession of the United States it will undoubtedly become the refuge of may patients suffering from diseases of this type.

THE ARMY SURGEON.

THE surgeon and the quartermaster have won more victories than Napoleon. Given a healthy, well-fed and well-provided army, the work of the general is reduced to a minimum. The belly and the feet are the vulnerable points of the army. A widely known and brilliant war correspondent has said that he was not so much astonished at the bravery of the soldiers as at their immense capacity for walking. A distinguished English general, when asked the two most important things in a campaign, said the first was a good pair of shoes for each soldier and the second was another good pair of shoes. That the importance of the feet is underrated in civil life is shown by the fact that when the New York state troops were examined by their own surgeons, the reports on the condition of the men's feet were so incomplete that the regular army surgeons directed a re-examination of those already passed, with a special view to a study of the condition of their feet.

Whether in camp or on the march the work of the surgeon is of the first importance. There is a growing tendency to refer to the medical department of the army as the "sanitary" corps. This tendency is simply a recognition of the fact that by far the more important duties of the department have to do with the prevention, and not with the cure of disease. The opinion of the surgeon is, or always should be, consulted in the selection of a site for the camp, and his instructions regarding camp hygiene strictly enforced. The discharge of his routine work at sick call and in the hospital tents by no means embraces all the duty of the army surgeon. No detail of camp life is too small to deserve his careful study.

The commissary department has been charged with gross incompetence by some of our volunteers, and the reply to this criticism is that the fault lies with the company cooks. If this be true then the surgeons are indirectly at fault, for it is a very important portion of their duty to see that the food is properly prepared. A prominent surgeon in the Confederate army stated before the Pan-American Medical Congress held in the City of Mexico, that during the early years of the war the frying-pan proved more fatal than the bullet. It took the troops two years to learn that the stew is the most satisfying, as it is the healthiest form in which to serve their rations. The memoirs of Count Rumford contain a very interesting account of his study of the rations of the Bavarian troops. These troops, every one of whom was the picture of rugged health, only ate meat once or twice a week, and the amount expended by them for food was only about 3 kreutzers per day. The results were obtained by serving the food almost altogether in the form of soups. Suggestions of this nature from the surgeons, with a careful supervision of the results obtained, will go far toward keeping down the sick list. Every detail of the soldier's life comes within the province of the surgeon's care, and if he perform his duties conscientiously, there is no busier man in camp.

The first officer killed, in the first battle on land, was Dr. Frederick Gibbs, of New York, an assistant surgeon attached to the marine corps. War is no respecter of persons or intentions; a surgeon at the front on an errand of mercy is as much a mark for a bullet as is the leader of the forlorn hope. With the great range of the modern gun the danger to non-combatants is increased many fold. No matter what the danger, however, the members of the medical department will undoubtedly do the full measure of their duty in military as they have in civil life, for there is no class of citizens in whom the sense of personal responsibility is so highly developed as it is in the physician.

INHUMANE BULLETS.

THE use of explosive bullets in warfare is forbidden under the agreement made at the St. Petersburg Convention, and this agreement has been adhered to, though these bullets are still used to a certain extent in shooting big game. The modern bullet is about the size of a lead pencil and the exterior is hardened by the application of a nickel casing. At close range these bullets will pass through a man without stopping him, and in this they fall short in a very important particular, especially when troops are opposing a rush of uncivilized soldiers. When a savage is struck he is not put out of action, unless the wound is accompanied by a great shock. This effect can be produced by divesting a portion of the bullet of its hard covering, and this has been done in what is known as the Dum-Dum bullet, a name derived from the factory in India where they are made. These bullets were criticized, as noted in our last issue, by Prof. Bruns, at the Congress of German Surgeons. This criticism has called forth a good deal of correspondence, and we print elsewhere in this issue several interesting articles on the subject. The reports from the skirmish at Guantanamo between the Spaniards and the landing force of American marines speak of mutilation of two of the latter by the Mauser bullets with which they were riddled. It would be of interest to learn whether the Spanish have hit upon the expedient resorted to by some of the British troops in the campaign against the Afridis, viz., filing off the hard end of the bullet against the rocks and thus making them "set up" in the same way as the Dum-Dum bullet.

GAILLARD'S MEDICAL JOURNAL.

VOL. LXIX. NEW YORK, AUGUST, 1898. No. 2.

THE USE OF CREOSOTED OIL FOR THE EXPULSION OF TRACHEAL FALSE MEMBRANES AFTER TRACHEOTOMY; AND OF INTRANASAL INJECTIONS OF OIL IN VARIOUS AFFECTIONS.[1]

By WILLIAM EWART, M.D., F.R.C.P.,

Physician to and Joint Lecturer on Medicine at St. George's Hospital; Physician to the Belgrave Hospital for Children.

The time-honored treatment of croup by emetics, which aims at the removal of the membrane in the earliest stage, and is sometimes successful, deserves to be thought of in all cases seen at the beginning. For the later stages it has been superseded by modern methods of treatment. In all forms of diphtheria the injection of antitoxin should be our first care; and in the naso-pharyngeal cases it often succeeds almost without other aid. In tracheal diphtheria this fortunate result cannot be depended upon. Tracheotomy, which relieves that part of the dyspnœa which is due to superadded spasm, is powerless to clear the membrane away from the trachea and from the bronchial tubes. It is in these cases that the method suggested is of special value.

Tracheotomy itself was formerly too often delayed until the symptoms became urgent, indeed, sometimes to the verge of asphyxia, the disinclination to operate early being perhaps explained by the not infrequent failure of tracheotomy to save life. The author's opinion and practice have long been in favor of early tracheotomy. The scar which is left in the neck is, after all, a small matter compared with the risk to life involved in delay based upon a doubt as to the diagnosis. Our improved methods are arguments in favor of an early operation. Antitoxin accelerates the detachment of the membrane, and this will be the more readily expectorated if the child has not been exhausted by prolonged dyspnœa; whilst the method now advocated, which has for its chief object to promote the expectoration as well as the detachment of the membrane, cannot conveniently be applied except after a preliminary tracheotomy, but distinctly improves the prospects of that operation.

The present treatment, previously mentioned in a joint communication by Mr. Hubert and the writer, is applicable, after tracheotomy, in cases of simple tracheal diphtheria or in those in which the trachea is involved in addition to the pharynx. Its objects are: (1) To promote the expectoration of the membrane; (2) to assist its detachment; (3) to lessen its infectiveness *in situ;* and (4) to stimulate and soothe the ulcerated mucous surface.

---

[1] Delivered before the North Kent District of the South-Eastern Branch of the British Medical Association.

The first two indications are the most urgent, and in so far as it has succeeded in fulfilling them, the method has contributed to the saving of life, since death when it occurs is due to the direct obstruction set up by the membrane or to its unchecked extension into the small tubes.

In the following cases, as in that previously reported, the diphtheria was limited to the trachea: and they resembled it also (1) in having been diagnosed at first as simple laryngitis, but when first seen by the writer as latent diphtheria necessitating tracheotomy; (2) in the circumstance that no membrane was seen,even at the time of the operation; and (3) in the fact that the relief afforded by the latter was only temporary and was followed by death from gradual asphyxia in the one case (in which the treatment was not applied and no antitoxin was injected), and in the other by asphyxia and apparent death through impaction of membranes, resuscitation being fortunately obtained by artificial respiration.

The first case illustrates the result of the non-expulsion of the tracheal membrane, death occurring within thirty hours after the tracheotomy, and the necropsy showing a thick membrane extending down the trachea from the level of the tracheotomy wound. In this case an opportunity of prescribing the creosoted oil was unfortunately not afforded, and the child remaining without any effectual cough after the tracheotomy, no membrane was expectorated from first to last. Death was due to gradual asphyxia of mechanical origin, not to broncho-pneumonia.

The second case came under treatment on the fourth day, with considerable dyspnœa. Tracheotomy did not show the presence of any membrane, but only some suspicious stringy mucus; but membrane was coughed up on the same evening, and for twenty-one days subsequently, and its diphtheritic nature was shown by cultures both in the early stage and toward the end of the case. Fifteen drops of creosoted oil (1 in 20) were introduced immediately after tracheotomy, and 4,000 units antitoxin were injected at the same time, and again the next morning. The treatment by creosoted oil was continued throughout the case with an interval of four days, during which simple olive oil was substituted. The slight tinging of the sputum, which had been observed at intervals under the creosote, continued under the influence of the pure olive oil; and further proof that the hæmorrhage was not set up by the creosote was also obtained by raising the strength of the creosote for a while to 1 in 15, and even to 1 in 10; no undue irritation and no hæmoptysis were thereby induced. The original strength (1 in 20) was then resumed, and the treatment continued until membrane ceased to be discharged. Recovery was uninterrupted in spite of the unusually long membranous and pyrexial stage, the signs of broncho-pneumonia at the right base ultimately disappearing. After a rise due to two successive antitoxin rashes, the temperature finally fell, and the tube was removed on April 12. No paralytic symptoms occurred in the case. The albuminuria, at first considerable, disappeared within the first fortnight. An abundant crop of pustular acne on both legs, which occurred soon after the antitoxin rash, is the only other point deserving notice.

Frequency and Mode of Administration.—Fifteen drops were at first introduced every two hours, but from the third day every four hours. The immediate effect of the creosoted oil was to set up cough, and its influence in aiding the detachment of the membrane was indicated by the ease with which, during the intervals, membrane was expectorated by spontaneous cough. In the cases hitherto treated an ordinary drop bottle has answered every purpose. The oil did not cause the slightest distress to the patients. Indeed, up to the present no practical objection to the method has been noticed; and its safety, which enables it to be carried out by any trained nurse, is a recommendation.

Addendum.—The practical aspects of the question as to early tracheotomy is illustrated by another case of latent diphtheria which was submitted to the same treatment shortly after this paper was read. The case, which appears from the result to have been one of mild laryngeal diphtheria with only slight extension down the trachea, might probably have done well without operation, under antitoxin alone. But the risk had to be dealt with of the case being perhaps more severe than it appeared, and possibly ingravescent with extension of the membrane into the lung. Again, the injection of oil after the tracheotomy and its systematic employment, although the breathing had become free, were part of a precautionary treatment for the tracheal diphtheria which could reasonably be suspected, and were prophylactic measures against the extension of the process to the bronchi and bronchioles.

The boy, aged 4 years and 8 months, was admitted on the sixth day after the first symptoms of sickness and headache. The croupy cough and voice had been noted two days before admission. The respiration was slightly noisy, the cough hoarse and brassy, but there was no expectoration. There was moderate respiratory recession at the base of the thorax. No membrane could be seen, but there was some pharyngeal redness, and the tip of the epiglottis was red and slightly swollen. These symptoms had developed whilst the child had been kept in the house for two or three days, and were not therefore explained by laryngitis or exposure. Temperature 99.4°, pulse 108, respirations 28. On April 17, the diagnosis of diphtheria having been made, immediate tracheotomy was prescribed, to be followed by the introduction of 15 drops of creosoted oil (1 in 20), and by an injection of 4,000 units of antitoxin. The operation was performed successfully and at leisure, there being no urgent dyspnœa, but no membrane was seen, and some opaque mucus only was expectorated on opening the trachea, and after the introduction of oil. A first examination of the sputum for bacilli was not successful, but a cultivation taken two days later showed them. The breathing was completely relieved, and only a few rhonchi were heard in the chest. The progress of the case was satisfactory and rapid. The expectoration, promoted by the oil, which was repeated every two hours at first, and subsequently, on the 19th, every four hours in ♏ v doses, consisted chiefly of opaque viscid mucus or muco-pus, which did not present a true membranous aspect until the third day after the tracheotomy, when a small piece of membrane was brought up. On the second day after the operation the epiglottis appeared much less red and not swollen, but when the plug was introduced into the tracheotomy tube there was still stridor. On the third day these symptoms were much less. The child presented no bad symptoms, and no continued pyrexia. There was a trace of albumen in the urine on the 19th, none afterwards, and no paralytic symptoms. The tube was removed on the tenth day after the operation.

This was an instance of early tracheotomy which may not have been absolutely indispensable, but at any rate was the source of complete and speedy relief to the patient, and of absence of all anxiety to the physician, and is therefore not to be regretted.

The Intranasal Use of Medicated Oils or Oily Fluids.

In diphtheria the occasional occurrence of a prolonged period of infectiveness after apparent recovery has suggested an important precaution, that of keeping, throughout the attack, and for some time after recovery, the nares protected by some antiseptic and healing application. For some years the writer has made this a rule of nursing in his cases, and carbolized oil (1 in 60) has been systematically introduced either by the swab or by the dropping method. A very small quantity of oil repeated twice a day will suffice. It is not improbable that, after the pharynx has cleared itself of membrane, some of the infection may linger in the large mucous tract above, especially in the absence of any cleansing treatment, and that in reported instances of late infectiveness the mischief may have really resided in the nasal fossæ. At any rate, it is believed that this precaution, if carried out methodically, might materially diminish the risk of a late transmission of diphtheria during convalescence.

In affections of the nostrils, naso-pharynx, and the sinuses local application of oil does not appear to have occupied the therapeutic position which some of its advantages seem to deserve. It is not referred to in current literature, and does not seem to have been practised with frequency, if at all. This circumstance may have been the result of the only drawback which the method presents, namely, that it is somewhat unpleasant to sensitive persons, and unless used with discretion, apt to nauseate. On the other hand, its simplicity and its efficacy in fulfilling the objects for which it is prescribed are recommendations. Its good results are manifest chiefly where it is locally applied to the mucous membrane affected; but it is also beneficial in those respiratory affections in which the trachea and the larger bronchial tubes suffer jointly with the nose and the naso-pharynx, and also in some cases of neurotic dyspnœa or asthma in which the nose is the seat of irritation. Its action in these cases would be one partly reflex, and therefore distinct from the results obtained by the strictly local method of the intralaryngeal injections continued for long periods; moreover, it does not claim to cure the affections in question, but merely to alleviate their symptoms and to obviate the recurrence of the attacks.

The same mode of application is suitable to all cases. A small quantity of carbolized oil (1 in 60), flavored with some essential oil such as that of almond or bergamot, is introduced into the nostrils whilst the patient is lying down with the head thrown back. A small glass syringe fitted with a spray nozzle is best, but failing this a common nozzle will answer; or the oil may be simply dropped into one or both nostrils. The patient should be directed to turn the head from side to side to facilitate the spreading of the oil. Where the object is local treatment of the frontal sinuses it will be necessary to throw the head still further back, and to keep it in that position for a minute or two. If the quantity of oil should have been excessive, or if it should have been dropped instead of sprayed, it will trickle down the back of the throat, and this often excites some nausea. The quantity which has generally been used is about a saltspoonful or 15 drops, but even a less quantity may be found useful, and the objection stated may then not arise. The oil may be made the vehicle for various remedies. Recently, for instance, in a case of recurring epistaxis, in which the source of hæmorrhage was thought by the patient to be in the left frontal sinus, tannin was added to the oil, and the latter was felt by the patient to reach the spot in question. In many cases stimulation is wanted quite as much as, or even more than, mere protection. I have therefore availed myself of a well-known formula:

Menthol, thymol	aa 1 gr.
Ol. eucalypt	♏ v.
Ol. olivæ ad	℥ jss.

and this has been preferred by some patients to the oil, and in others has been found efficacious where the latter did not relieve the symptoms. The stimulating solution is specially useful in neurotic cases.

The conditions in which the local use of medicated oil may be found of value are the following:

1. *In continued pyrexia* the drying and caking of secretion in the nasal cavities is a source of much discomfort; the mouth often has to be kept open in consequence, and the dry tongue of fever is the result. In these cases, as in the following, the quantity of oil required is very small provided it be thoroughly applied, and this can be done by introducing a thin swab of twisted cotton wool or of lint charged with the oil.

2. *Nasal dryness and fœtor* are also apt to occur in all varieties of continued hurry of breath, but particularly in that which belongs to heart disease with broken compensation. Among valvular diseases, advanced mitral stenosis, with or without associated regurgitation, in which there is considerable pulmonary and venous congestion, is that most often accompanied by these symptoms. The ozæna-like odor was formerly supposed by the writer to be dependent upon some local lesion special to this disease; but it is probably explained simply as a result of permanent congestion and of the drying of a mucous membrane lined with secretion. The comfort to the patient and to the physician arising from this treatment is well worth the small trouble which it gives.

3. *Tachypnœa and Hysterical Tachypnœa.*—A passing reference may be made to the word "tachypnœa," a convenient addition to a useful series of terms. "Dyspnœa" requires no explanation. The mean-

ing of "tachypnœa" is analogous to that of tachycardia, and exclusively refers to the increase in rate. It enables us to restrict the use of the term "hyperpnœa" to its proper meaning, which should be equally exclusive—namely, that of increase in the depth of respiration. For instance, in the dyspnœa of over-exertion there is tachypnœa as well as hyperpnæa; the breathing is deep as well as rapid. The same association is sometimes present for many hours before death in cases of cardiac exhaustion, and in them a slackening in the speed and in the depth of the loud breathing is the immediate harbinger of death. On the other hand, in the air-hunger of diabetic coma the respirations are deep but they are not hurried. And lastly, in the panting of the obese—as in that so familiar in the lapdog roasting before a fire, hyperpnœa is conspicuously absent; there is respiratory hurry, but the breathing is quite superficial. These are typical instances easily described, but in analyzing other conditions which may be less obvious the distinction in terms is a help. No cases of hysterical tachypnœa have been under observation since this treatment was taken in hand, but it is not unlikely that some impression might be made upon inveterate cases by this method of local treatment or some modification of it. At any rate, it may be worth trying.

We now pass to the large group of the respiratory affections. The chief benefit is to be gained in those affections in which the mucous membrane of the upper air passages is immediately or indirectly concerned—namely, the obstructions and catarrhs of the nose and throat and of the pharynx, and in spasms and cough set up by naso-pharyngeal irritation.

4. *Among the obstructive and naso-pharyngeal troubles* permanent or progressive structural defects, such as narrowing of the passages, polypi, adenoid growths, etc., are curable only by surgical means. But striking alleviation of any superadded congestion or catarrh may be brought about by the use of oil, which is particularly indicated for impacted foreign bodies. Much benefit may accrue in children suffering from large tonsils or adenoid growths, and from nocturnal restlessness and cough, if the mucous membrane can in this way be kept free from irritative congestion, swelling, and dryness, by protecting it from the results of open-mouth breathing. The same applies in the adult, where the nostrils are blocked by a polypus or by secretion and swelling.

5. *Dry naso-pharyngeal catarrh and granular pharyngitis* are both susceptible of much relief. The treatment is specially adapted to cases in which dense adhesive mucus forms scabs on the pharynx, and leads to the well-known distressing symptoms; and as a protecting agent it also may be of much service in granular pharyngitis. Acute catarrhal pharyngitis, if submitted to this local treatment sufficiently early, when the sore, raw feeling, or the stiffness and pain limited to one spot, with which the affection often begins, are first perceived, would probably be manifestly relieved, but there are no cases to report. This might be the means of checking the usual extension of the catarrh to the mucous membrane of the trachea and large bronchi.

6. *Bronchial catarrh* of the large tubes, or common chest cold, is frequently the sequel of the concomitant of nasopharyngeal catarrh. This conjunction led the writer to try the treatment in his own case,

and he was much impressed by the relief afforded, not only to the nasal catarrh, but to the chest symptoms, including retrosternal pain and rawness, painful cough and expectoration. He has since then observed equally satisfactory results in other cases.

Remarks on the Treatment of Tracheal and Bronchial Catarrh.—It is difficult to explain how a local application in the nose can relieve the chest, since it is doubtful whether the oil, although spreading so readily, can find its way downwards into the air passages. The influence is probably one partly brought about by associated nerve agencies. If, therefore, we regard the resulting relief as one merely reflected from the pharynx, we can hardly expect that the nasal method can be of much service in bronchitis of the smaller tubes. On the other hand, the direct application of oil might perhaps be of use, and one at least of these cases narrated is an instance of the success of this treatment in the broncho-pneumonia of diphtheria. The results noted from the indirect or intranasal method causes us to inquire again whether the more frequent use of intralaryngeal injections might not be of advantage. Hitherto they have been chiefly employed in chronic pulmonary affections; but if directed to the cure of the more acute catarrhs of the large tubes, their efficacy might be more manifest, and probably many a protracted chest affection might be avoided or considerably shortened in duration. It may be thought that this is too powerful an engine to apply to small work. But the intralaryngeal injections are really not troublesome to the patient if successfully performed, and their performance presents no difficulty to anyone familiar with the laryngoscope.

On the other hand, it would be premature, without previous trial, to recommend intralaryngeal injections in broncho-pneumonia, and their desirability in acute bronchitis must also remain an open question till further experience has been gained.

7. *Asthma.*—It is well known thtat in a proportion of cases of asthma the affection is connected with some nasal trouble, usually a congestive hypertrophy of the mucous membrane; and the opinion has been held that asthma itself is a congestion and swelling of the bronchial mucous membrane. The late Sir Andrew Clark took that view. Only a proportion of these cases yield to local nasal treatment by the galvano-cautery or to local medication such as that by perchloride of mercury, carbolic acid and quinine, formerly recommended by Sir Andrew Clark. Among the local methods which might still be resorted to in the unrelieved cases the present one suggests itself for trial. But in the probably larger catarrhal group the indication is a double one, and it is to this group that the following cases belong.

The first case was the most successful, that of a man aged 58, of gouty parentage and the bearer of Heberden's nodules, suffering from severe catarrhal asthma and emphysema, which no form of treatment seemed to relieve. His chest symptoms dated back to influenza six years previously, and his dyspnœa had unfitted him for work for fifteen months. His present severe attack had lasted almost unabated for six weeks, when a trial of this method was suggested to the writer by the relief he had personally obtained from it. The treatment by carbolized oil gave immediate results. The nose which had been blocked, became pervious, and the dyspnœa, as well as the catarrh, was greatly relieved. In this case the relief was kept up, and the patient never complained of the treatment, but ascribed his improvement to it. After a while the parolein solution of menthol, thymol, and eucalyptus oil was substituted for the oil, and this also gave much relief, and was preferred to the other application; but the symptoms had no longer presented any severity when it was first tried.

The second case was also striking in the immediate relief given by the application of the oil during a protracted attack of asthma which the inhalation of the datura cure and Himrod's cure, the former usually a sovereign remedy in this case, had been tried ineffectually for several hours. The patient was orthopnœic, and inhaling Himrod at the time the treatment was applied. Under its influence the spasm relaxed, and the patient was soon able to lie down. This attack had originated in the hospital after an attack of articular gout, for which the patient had been admitted. He had been liable to occasional asthma for sixteen years. In spite of this conspicuous relief to the asthma, the patient did not care to submit to the treatment for the remaining catarrh, which was dealt with in the ordinary way.

In another case of inveterate catarrhal asthma recurring in the winter months since the age of 10, for which the datura inhalation was usually an immediate cure, but which on this occasion failed to be relieved by it owing to the severity of the catarrh, the introduction of carbolized oil into the nose did not control the symptoms, and other treatment was applied, the symptoms yielding gradually. At a later date the carbolized oil was again used for the catarrh, with good, though not striking, results, and the parolein solution was substituted after a while.

The conclusion to be drawn from these experiences is that the method is well worth trying, but cannot be relied upon to benefit every case of asthma, though its trial will probably not be detrimental in any of them.

In reviewing the whole subject it should be understood that these are suggestions rather than dogmatic statements as to the absolute value of the method; whilst its failures may sometimes have more to do with questions of detail than of principle. Much will depend, for instance, upon the kind and the strength of the ingredients added to the oil; and idiosyncrasies have to be borne in mind. Again, the mode of application and the amount injected at one time may have to be varied according to the case; but in all cases the application in the form of spray will probably be more efficacious as well as more acceptable than either the simple injection or the dropping method.

* * *

MILITARY SURGERY.

YELLOW FEVER; ITS DIAGNOSIS AND TREATMENT.*

By J. EDWARD STUBBERT, M.D., of New York,
Lecturer on Tropical Diseases, University Bellevue Hospital Medical College.

The dispatches from Surgeon-General Sternberg, announcing the presence of yellow fever among our troops in front of Santiago, have caused widespread anxiety among American homes. While we have no reason to doubt the fact of the presence of the dread disease in our camps, there is considerable encouragement in the statement of Dr. Valiente that there is no especial danger from yellow fever along the southern coast, and that the prevailing fever in that section during the rainy season is of malarial origin. The reserve of Dr. Sternberg is well advised, and he undoubtedly recognizes the danger of the panic that is universally present in districts infected with yellow fever. In West Indian districts yellow fever and malarial fevers are generally concomitant, and it is often very difficult for experts to determine between the former and pernicious malaria. Greater uncertainty and confusion will necesssarily occur among our surgeons, most of whom have never had the opportunity of becoming familiar with the two diseases; therefore, considerable allowance must be made for the reports we see daily in the press of "additional cases," and a large percentage assumed to be of coast fever.

The yellow-fever germ depends for existence upon humidity, heat, and a certain amount of filth and unsanitary conditions. The bacillus icteroides does not live, as a rule, on high ground on sites exposed to sunshine and breezes. The means of infection in the present epidemic is probably to be located in the large number of refugees who wre allowed to enter our camps. This was a mistake that cannot be remedied, but should have been foreseen, and will be a warning to the Medical Department of the Army in Porto Rico, and at other points in Cuba.

The questions before our surgeons at the present moment are: (1) prophylaxis; (2) diagnosis; (3) treatment. Prophylaxis should consist in an iron-bound quarantine absolutely controlled by the Medical Department. Red tape and bureaucracy may be feasible in delaying military movements, for the enemy may also be slow; not so with yellow fever; the Medical Department must be free to act promptly as necessity indicates. As far as possible negroes and immune troops should be used in and around Santiago; those not so classified should be placed in camps on elevations overlooking the sea when possible; if not, then on high points inland. There should be conveniently located suspect and pest camps; there should be a medical inspection every day, when the surgeons should carefully overlook every soldier, select out even mildly suspicious cases, and send them to the suspect camp until it be determined whether the case be one of malarial or yellow fever. At all points where patients haye been located clothing, tents, brush, and everything else capable of providing a lodgment for the germ should be destroyed by fire or thoroughly disinfected. If such rigorous methods are employed there is little danger of the establishment of more foci of disease among our camps.

---

* *The Medical News.*

During the work on the Nicaragua canal not a single focus of this disease was established along the company's line, although yellow fever was present each year on the same coast directly north and south of the company's headquarters, and there were daily arrivals of steamers and small schooners at the ports. On the Pacific coast of Nicaragua each year yellow fever appears in the cities located along the line of railroad from Corinto. The comparative immunity on the Atlantic side was due undoubtedly to rigorous quarantine and prophylaxis, in the application of which the Medical Department of the Canal Company recognized no superior in taking orders or seeking advice. For bureaucracy yellow fever has no respect.

Diagnosis.

The scientific method of diagnosis by the agglutination tests are of great value, as Tonatre has said, in labeling the disease, but in camp work the greatest reliance must be placed upon clinical diagnosis. The serum test is more accurate on the second day of the disease than later, but there are clinical features which, to an eye accustomed to the symptoms of yellow fever, will infallibly establish the diagnosis in a vast majority of cases during the first day. Neither can the surgeon invariably exclude yellow fever on account of the presence of the malarial plasmodium.

Symptoms.

Some cases are ushered in by the historical chill, but all are preceded by rigors of more or less severity. In most instances the facial expression is characteristic, congestion of the whole countenance and suffusion of the eyes, accompanied by pain in the back and limbs, and very severe bilateral-frontal and postorbital headache. The initial temperature is usually about 102° F. and the average maximum, less than 104° F., is reached generally within the first six hours of the disease. The remission occurs sometimes on the third day, rarely on the fifth, generally on the fourth, and lasts, on an average, six hours. The average length of the third stage is three days. Black vomit appears in most cases as early as the third day, but nausea is present from the incipiency of the disease. Decrease of the amount of urine is observed on the second day in nearly every case, and albumin on the third or fourth day. It will be found in large quantities in about 98 per cent. of the cases under observation, and will rarely be absent. In a number of cases treated by the writer the application of the heat test alone was sufficient to coagulate the urine into a solid mass that would remain in an inverted test-tube. The amount of albumin seems to have no relative effect upon the rapidity with which the urine clears up during the stage of decline. In most cases the albumin will disappear suddenly with the fall of temperature during the third stage of the disease, but in exceptional instances traces are discernible for some time during convalescence. Jaundice is by no means a constant symptom, and rarely is it present before the fifth or sixth day.

Constipation is found in most cases all through the disease, sometimes diarrhœa supervenes during the third stage, and at times, where intense general jaundice is present, the defecations are pasty and clay-colored. In a majority of patients the mind will remain clear until the end of the disease, whetther that end be reached in death or recovery. The pulse is generally slow, and there is a wide divergence between it and the temperature. Some cases are marked by great depression, intermittency of the pulse, algid surface, and during the third stage a great difference between the sublingual and rectal temperatures; the former was, in one patient of the writer's, 99.2°, while the rectal was 102.6° F. Generally on the night of the third day or morning of the fourth the temperature drops suddenly three or four degrees, ushering in the stage of remission or quietude; at its close the temperature again rises to nearly the height attained in the first stage, and then, in favorable cases, begins to decline by lysis; in fatal cases the stage of remission is very short and followed by a high remittent temperature. In abortive cases, especially when the epidemic is on the decline, convalescence follows immediately upon the stage of remission. During the third stage, or that of decline, the temperature and pulse gradually approximate.

The disease most likely to be confounded with yellow fever in our Santiago camps is pernicious malaria; the following comparison presents their most prominent points of differentiation.

Dengue or break-bone fever is a disease having its habitat in warm climates, and has been confounded with mild cases of yellow fever. The reason is not apparent, for their clinical histories are distinct: The following table shows a comparison of the more prominent symptoms common to both diseases:

YELLOW FEVER.	PERNICIOUS MALARIA.
Headache bilateral-frontal, and post-orbital.	Headache generally unilateral frontal and temporal.
Temperature and pulse divergent; temperature rarely higher than 104° F.	Temperature and pulse correlative; temperature generally 105° to 107° F.
Albumin present in large quantities early in the disease.	Albumin rarely present.
Quinin has no effect on the progress of the disease.	Quinin has a specific effect if given hypodermically and early.
Stage of remission on third or fourth day.	Remission not present.
Attacks new arrivals.	Generally history of chronic malarial infection.
Always history of exposure to infection.	No history of exposure to infection.
Black vomit appears on third or fourth day.	Black vomit appears within thirty-six hours.
Hæmaturia very rarely present.	Hæmaturia a marked symptom.
Liver unchanged.	Liver enlarged and tender.

YELLOW FEVER.	DENGUE FEVER.
Cephalagia and nephralgia are the characteristic pains, and are constant.	Pain most severe in joints and muscles, and is *paroxysmal.*
Pulse and temperature divergent.	Pulse and temperature correlative.
The slowing of the pulse begins early in the disease.	The slowing of the pulse occurs late in the disease.
Congestion of face early in the disease. No œdema.	Rash on face, followed quickly by œdema.
Albuminuria.	Albuminuria absent.
Icterus.	Icterus absent.
Black vomit.	Black vomit absent.
No eruption.	Polymorphous eruption, followed by desquamation.

Treatment.

The mortality of yellow fever has been decreased considerably in recent years. General Sternberg's treatment has given the remarkably low death-rate of 15.9 per cent. in Havana, 7.3 per cent. in the United States, Brazil, and Cuba, and 4.7 per cent. in Florida. The average death-rates range between twenty and fifty per cent.

While awaiting the full development of the anti-toxin of Sanarelli, our treatment of this disease must be expectant and symptomatic, together with careful nursing. All authorities agree upon the first two steps to be taken: Purge the patient with a single dose of one-half to a full tumblerful of castor oil; then produce profuse diaphoresis either by hot air or mustard pediluvia. After the first cathartic has acted freely, a gentle daily movement of the bowels should be maintained by the following:

℞ Magnesiæ sulph.
Magnesiæ carb.
Sulphur precipitatis } aa 15.00
Sacch. lactis
Pulv. anisi } aa 8.00
M. Sig. Teaspoonful once or twice a day.

This is very necessary to prevent constipation and secondary intoxication.

Diet.

Diet throughout the disease should be restricted to milk and Vichy in equal parts. During the first two or three days the Vichy may be taken alone if more pleasing to the patient. It stimulates hepatic circulation and renal secretion, and some believe that it dilutes or neutralizes the icteroid toxin. During the second and third stages the patient should be urged to take milk.

Antipyretics.

There will be great temptation to administer antipyrin or some similar drug during the first stage, but unless the temperature rises above 104° F., it would be inadvisable, because yellow fever is a cyclic disease that cannot thus be turned from its course, and because of the danger of cardiac depression in the second stage. Baths are of doubtful benefit, excepting for the comfort of the patient. The urine should be measured and examined twice a day, and at the first signs of suppression 1-100 of a grain of nitroglycerin given for two or three doses at intervals of six hours, and followed by digitalis and saline diuretics. Poultices are of occasional benefit. A cardinal point of treatment is to produce copious diuresis. If this be accomplished the patient will generally recover. The larger quantity of urine passed the smaller will be the percentage of albumin, and, therefore, in direct ratio, the less danger of death. Buanger-Ferand has recommended large enemata of cold water to reduce the temperature. Undoubtedly this would be one result of such injections, but more important one, to my mind, would be the diuresis thus established. These enemata should be given twice a day in as large quantities as can be retained and absorbed by the rectum.

Nausea and Vomiting.

Most authorities are opposed to the use of emetics in this disease. However, the writer has seen the most gratifying results follow a single emetic dose of ipecac if given as soon as a tendency to vomit is shown in the first stage. If this be followed by copious draughts of tepid water until the stomach is well cleaned, and then $\frac{1}{8}$ of a grain of morphin given hypodermically to quiet the stomach, the patient will feel much relieved, and thereafter will experience very much less nausea. This special treatment should never be entrusted to a nurse. Ipecac or morphin given at the wrong time are capable of great harm to the patient, but there is a moment, generally once only in the first stage, when their intelligent use seems to be indicated. It appears to abate severe gastric disturbances. Other symptomatic treatment for nausea consists of the use of $\frac{1}{4}$ grain of carbolic acid in one dram of peppermint-water every two or three hours, cracked ice and sinapisms.

Morphin.

Much opposition is recorded against the use of opiates in yellow fever. In the abstract the objections are well founded, especially where there is much danger of anuria. There can be no infallible rule laid down, I believe, but the physician should be goverened by symptoms, always bearing in mind the danger of suppression of urine. Given a case in which diuresis is well established, or even in which it is fairly copious, I believe the very occasional administration of 1-12 to 1-8 of a grain of morphin hypodermatically is not only justified, but indicated, to quiet the jactitations of the patients, and to relieve the nausea that does not yield to the other remedies suggested. If carefully watched, there can be no danger to the patient, and the relief obtained does much toward conserving strength for the stage of depression. During the epidemic in Salvador in 1894 the German and native physicians steadfastly refused to administer morphin because theoretically wrong. The writer used it from two to six times in nearly every case. The results, eleven per cent. fatality, as against over forty per cent. fatality among the patients of the German and native physicians, would seem to indicate that practice is at times better for the patient than theory.

Stimulants.

Champagne is very universally used, as well as brandy. They should be given in small quantities, often repeated, and ice cold. Kola is strongly advocated by the French school, but I have seldom seen good results from its use, and it certainly is distasteful to the patient.

A summary of treatment may be, primarily, free catharsis and diaphoresis. Secondarily, constant avoidance of anuria and constipation, mild gastric and intestinal antisepsis, careful watching for and combating advance symptoms, and good nursing. Add to this Tonotri's excellent advice, "Battle to the last," and many patients who are apparently hopelessly ill may be saved.

CLIMATES OF CUBA AND MANILA.[1]

Cuba is to a great extent an unknown land; her forests alone are estimated to occupy no less than 13,000,000 acres, and are said to be so dense as to be almost impenetrable. But perhaps the most extraordinary feature in regard to this general ignorance concerning that island is the lack of exact knowledge of the climate. Pessimists contend that it is in a high degree deadly to the white man, while optimists are as strenuous in asserting that, provided needful precautions are taken, the air is quite salubrious. We have always been of the opinion that the climate of the island, at least on the coast and in the lowlands, during the wet season, from May to October, is decidedly unhealthy. Certain it is that its effects on the Spanish soldiery have been most disastrous, although, as we pointed out in a late number of the *Medical Record*, much of this excessive rate of mortality has been due to the inefficient system of hygiene, to bad diet, unsuitable clothing, and the carelessness universally prevailing among the military authorities with regard to the health of the rank and file of the army. However, there is no evading the fact that the landing of a large body of more or less raw, unacclimatized men in the lowlands of a reputed unhealthy coast at the beginning of the rainy season is an experiment that must from the very nature of things be attended with much risk. Therefore any accurate information on the subject is both apropos and welcome. A pamphlet has recently been issued by the weather bureau of the United States Department of Agriculture, prepared from information collected by W. F. R. Phillips, in charge of the section of climatology, and which contains in its pages all that is at present known concerning the climates of Cuba and Manila. Mr. Phillips says: "Ramon de la Sagra, in his 'Histoire de Cuba,' quotes as the earliest record he had consulted a year's observations of the barometer and thermometer made in Havana in 1794. The thermometer readings, however, appeared to be in error from some cause or other not known, and were considered too inaccurate to use. At only one station have systematic meteorological observations been made and published for any considerable time, and that is at the observatory of Belen College, Havana. . . . The climate of the West Indies presents, with respect to both temperature and rainfall, considerable variations from the generally conceived idea of tropical uniformity. These variations are largely, if not entirely, caused by differences in altitude and position with respect to the prevailing winds of the zone. . . . The average annual temperature of Havana, as determined from the observations at Belen College, made during the decennium 1888-1897 may be stated in round numbers as 77° F. In this decennium the highest annual temperature was 77.2° F., and this occurred upon three occasions; and the lowest annual temperature was 76.1° F., and happened upon only one occasion, showing in the ten years an extreme range in annual averages of but 1.1 degrees. It would therefore seem probable that the mean temperature for the decennial period 1888-1897 is about a true average for Havana for any long period. The warmest month at Havana is July, with an average temperature of 82.4° F. The coldest month is January, with an average temperature of 70.3° F. The highest temperature recorded was 100.6° F., in July, 1891, and the lowest 49.6° F., in February, 1896. For Matanzas, on the coast about fifty miles east of Havana, there is a record for two years. From this the mean annual temperature at Matanzas appears to be about 78° F. At Santiago it is apparently higher than on the northern and western coasts and from the meager data available appears to be about 80° F. . . . The relative humidity of the atmosphere appears to be fairly constant, as far as can be determined from the observations available, and averages about seventy-five per cent. of saturation. . . . The absolute humidity is very great. At Havana the average is about 7.5 grains of vapor to the cubic foot of air. The average rainfall for Havana is about sixty-two inches for the year. On an average the greatest rainfall occurs in October and the next greatest in June. The description of the rainfall of Cuba virtually resolves itself, so far as present information goes, into that of rainfall at Havana. The number of days on which rain falls is upon the whole considerable, about one day out of three at Havana. The prevailing winds of the West Indies are the 'northeast trades.' The average velocity of the wind at Havana is about 7.5 miles an hour. In climates having such high temperatures and humidities as shown for the West Indies, the velocity of the wind and its constancy are of the greatest importance to both comfort and health." As may be gathered from the portions quoted, Mr. Phillips' report is highly interesting, and should serve to remove certain misapprehensions which now exist respecting the temperature and rainfall of Cuba. The belief is widespread that the heat and rainfall are infinitely greater than in any part of this country; whereas in reality the average summer temperature of Havana is but little higher than that of New Orleans, while its rainfall is actually less. The climates of the low coast lands of Cuba is that of the torrid zone, and in the rainy seasons doubtless exercises a pernicious effect upon the health of unacclimatized white men. The higher interior of the island enjoys a more temperate atmosphere. The average temperature of Manila is 80° F. The months of April, May, and June are the hottest part of the year. May, with an average temperature of 84° F., is the hottest of the three. The highest thermometer reading recorded is 100° F.; this was observed in May. The average relative humidity is seventy-eight per cent. The average absolute humidity is 8.75 grains in a cubic foot. The average rainfall is 75.43 inches, of which 43.69 inches, more than fifty-seven per cent., fall during the month of July.

---

[1] *Medical Record.*

MALARIA IN THE TROPICS AND ITS PREVENTION.[1]

The diseases incident to the campaigns in Cuba and the Philippines that are held most in dread even by the medical profession are yellow fever and dysentery. The fact that malaria causes more deaths than both of these, except in seasons of unusual epidemics, is often lost sight of. Accustomed to the mild attacks of malaria in their native country, which is looked upon as a distressing illness not particularly associated with danger, it is forgotten that tropical malaria is in the vast majority of cases (from seventy-five to ninety per cent.) an entirely different disease in its manifestations and termination. Even though subject to the most orthodox treatment, it is one of the most fatal of the infectious diseases.

The lesson to be learned from this is that the mortality of our troops in the present war must be kept down by adopting measures that will serve to prevent infection. But prophylactic measures can only be effectual when based upon accurate knowledge of how the infection gains access to the system. The recent investigations of Koch in the German Colonies of East Africa tend to show that the conveyance of the disease by the atmosphere or by water is quite improbable, while, on the other hand, the fact that the disease can be communicated by suctorial insects, particularly by the mosquito, he believes has been established beyond peradventure.

This belief is gradually gaining adherents among our best experimenters and observers, and the investigations of Mason, of Ross, and of others, as well as the corroborative testimony of those who have great personal experience in the Oriental tropics, tend to make this teaching worthy of acceptation.

It is a fact that malaria affects those who engage in breaking up the soil; those who sleep on or near the earth; those who bathe in and drink stagnant, marshy water; those who are fatigued by long marches and enervating surroundings; but it would seem to be becoming yearly more evident that these are merely contributory causes of a kind that may be operative to facilitate the occurrence of any infectious disease. The fact that none of the plasmodia of malaria has yet been found in any other human media than the blood is a very strong argument in favor of the view which attributes the spread of malaria to the propagation of blood parasites by the mosquitoes.

It will be seen from reading our Berlin letter of this week that Koch considers the use of the mosquito net the most efficient means of preventing malarial infection. He, like other investigators and travelers in infected countries, was able to completely ward off the disease by the employment of this comparatively simple expedient. This, taken in connection with the statements of Emil Pasha and other travelers concerning the efficaciousness of mosquito-netting, tends to increase our faith in it as a part of the soldier's outfit. It may be possible to provide our troops with mosquito-netting and hammocks made of some extremely light material. Then, if discipline is enforced with sufficient rigor to prevent soldiers from bathing in marshy, stagnant water, where mosquitoes find their greatest facility in propagating, in becoming the extra corporeal host of the plasmodium, and in carrying their poison into the human body, our campaign in Cuba may be robbed of what verily seems to be now one of its greatest terrors.

---

[1] *The Medical News.*

Another very important fact that should not be lost sight of is that most investigators of the etiology of malarial fevers are united in the conviction that quinin is the most reliable prophylactic agent, although it is often given in too large doses. Koch avers that "blackwater fever" is nothing less than hematuria due to the toxic effect of quinin, plus malarial fever. There is no doubt that the plasmodia are extremely susceptible to the action of quinin, even when given in small quantities. Our soldiers should profit by the experiences of the French troops in Madagascar and of the Germans in their East African possessions in warding off malaria. It was the unanimous sentiment of those who studied the medical side of these campaigns that quinin, 6 to 10 grains in twenty-four hours, was a most efficient prophylactic, provided reckless and unnecessary exposure was avoided. The most reliable preparation is the hydrochlorate, and the most suitable way of administering it is in capsule or tablet form at meal time.

Dr. Hyatt, the United States Consul formerly at Santiago de Cuba, in a recent personal interview, stated that during his two years of residence there his only means of avoiding malaria was by the constant administration of quinin. By taking about 4 grains of the sulphate of quinin uninterruptedly every day during the past year, every member of his family had escaped without an unpleasant symptom. The least remission in this custom, however, was attended by immediate warnings. This is the testimony of a physician who had not only studied the local climatic and sanitary conditions for a year, but had endeavored to avoid as far as possible the taking of drugs. It must be borne in mind, too, that he was living under the best hygienic conditions, and amid the best sanitary surroundings that could be obtained. For a soldier undergoing all the hardships and exposure of a vigorous campaign in that country, 6 or even 8 grains of quinin daily would probably be required to produce immunity. But every dictate of prudence and of wisdom demands that he should have this security against so pernicious a disease. The exigencies of the campaign may make it impracticable to institute the universal employment of mosquito-netting, but quinin can be readily served with the soldiers' rations. In the light, therefore, of what is now known upon this subject, every soldier who loses his life from this malignant disease will be recorded as a needless sacrifice at the hands of the medical arm of the service, and every combatant who returns with his constitution wrecked by tropical malaria will justly hold the same officers responsible.

Quinin is procurable at the present time in almost any quantity. There would seem to be no reason why there need be any delay in promptly carrying into execution this imperative demand.

A NEW METHOD FOR MAKING THE HANDS STERILE.

That there are numerous practical difficulties in the way of obtaining absolutely sterile hands for operations is evidenced by the many new methods constantly being brought forward. The method of using rubber gloves is certainly the greatest step that has been made toward the solution of the problem. Recently C. Menge, in the *Munch. Med. Woch.*, No. 4, 1898, suggests a new idea which may do away with some of the disadvantages of the gloves, such as the obtunding of the sensibility of the skin, and yet retain the valuable features. The hands are first mechanically cleansed in the usual manner, are dipped into an alcoholic sublimate solution sufficient to kill all organisms, and are then thoroughly washed in 70 per cent. of alcohol, washing away all of the sublimate. They are then thoroughly dried upon a sterile towel and completely covered with a mixture of paraffin in xylol. This is said to give them a glove-like covering and yet preserves the tactile acuteness necessary for good surgery.

STIMULANTS.

The first choice of any particular stimulant seems to depend on such altogether accidental circumstances as the accessibility or cheapness of this or that special medium of intoxication. Orchard countries use distilled or vinous tipples; grain lands waste their products on malt liquors. The pastoral Turkomans fuddle with kumyss, or fermented mare's milk, the Ashantees with sorgho beer, the Mexicans with pulque (aloe sap), the Chinese and Persians with opium and hasheesh (cannabis indica), the Peruvians with the acrid leaves of the coca tree. Even mineral poisons have their votaries. There are thousands of arsenic eaters in the southern Alps. Arsenious acid, antimony, cinnabar and acetate of copper are mistaken for digestive tonics by Spanish and South American miners. By the process of fermentation rice, sago, honey, sugar, durrha (Sorghum vulgaris), dates, plums, currants, and innumerable other berries and fruits have been converted into stimulants. The Indians on the Llanos Ventosos in the Mexican State of Oaxaca stupefy themselves with macerated cicuta, a kind of water hemlock, and it is said that the delirium and subsequent reaction of a cicuta debauch correspond exactly to the successive phases of a whisky spree, the only difference being in the price of the tipple. If intoxication were a physiological necessity, it would, indeed, be folly to buy the stimulant at the dramshops, since cheaper poisons would serve the same purpose. A dime's worth of arsenic would protract the stimulant fever for a week, with all the alternate excitements and dejections of an alcohol revel. A man might get used to phosphorus and inflame his liver with the same lucifer matches he uses to light his lamp; we might gather jimson weed or aconite or fuddle with mushrooms, like the natives of Kamchatka, who prepare a highly intoxicating liquor from a decoction of the common fly toadstool (Agaricus maculatus).—Oswald in *The Popular Science Monthly*.

CLINICAL LECTURE.

THE CHARACTER AND TREATMENT OF CATARRHAL LARYNGITIS.[1]

By CLARENCE C. RICE, M.D.,

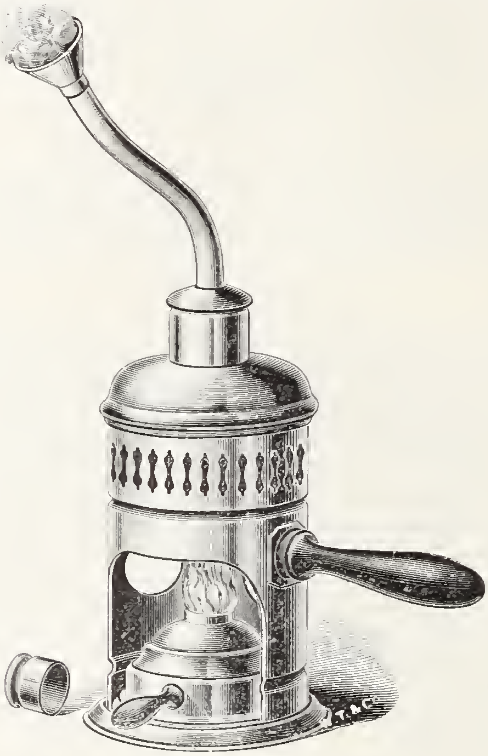
Professor of Diseases of the Throat and Nose, New York Post-Graduate Medical School; Consulting Surgeon in Throat Diseases to the Out-Door Department, Bellevue Hospital; Visiting Physician, New York Infant Asylum; Laryngologist to the Montefiore Home.

I am desirous of showing you some ordinary as well as some unusual cases of catarrhal laryngitis. I cannot state it too strongly that catarrhal affections of the larynx are always secondary to nasal and pharyngeal catarrh. The exceptions to this rule are where the larynx has been locally irritated by the inhalation of irritant gases or by sprays of too strong a solution. One other exception, we see in those people who use their voices in other ways than in ordinary conversation, as in public speakers, actors and singers. In these patients the amount of laryngeal disturbance is out of proportion to the nasal and pharyngeal catarrh. But speaking generally, we know as soon as we have examined the nose and pharynx about the amount of catarrhal laryngitis which we shall find, and also its type. In atrophic rhinitis and pharyngitis sicca we shall discover the laryngeal catarrh to be of the dry variety, whereas in hypertrophic nasal trouble the pathological condition of the larynx is simply that of congestion and moist swelling of the soft parts first, and later of the vocal bands.

In the older days, when all nose and throat practitioners were called laryngologists, the larynx alone was treated and the condition of the nose and pharynx thought to be of little importance. This mistake is not made at the present time. Always examine the nose and pharynx first, and the larynx later, and always put the nasal passages and the pharynx in good condition before paying special attention to the laryngeal catarrh. You understand, I am speaking now of simple catarrhal troubles and not of special diseases of the larynx. I am in the habit, however, of using certain mild astringent sprays in the larynx. First, it is a good idea to spray the larynx with a 1 per cent. solution of cocaine as an astringent, and to obtain toleration for any stronger medications. Follow this with any good disinfecting spray, such as very mild solutions of mercuric bichloride, or some one of the desirable and pleasant disinfectants—boro-formalin, thymo formol, etc., then the larynx can be medicated as you see fit. As astringents I like weak solutions of silver and zinc, from 3 to 10 grains to the ounce. I like the oily solutions, and the volatile substances which are to be incorporated can be used in stronger solution than in the nose, such as 10 grains to the ounce of either menthol, eucalyptol or thymol. It does not seem desirable to employ powders for laryngeal medication except in cases of ulceration.

---

[1] Clinical Lecture delivered at New York Post-Graduate Medical School.



Inhaler for Treatment of Catarrhal Laryngitis.

There are a number of useful and desirable inhalations for acute and subacute laryngeal disturbances which I have found of benefit. For acute trouble I like the inhaler which I illustrate here. It is on the principle of the old croup kettle, a convenient way of administering medicated steam. The medication is to be placed on the small sponge which is in the spout of the inhaler, and the medicated steam directed toward the mouth of the patient. I use it with children after they are asleep, covering over the crib with a sheet of newspaper and allow them to breathe in the medicated steam. I have found useful such prescriptions as these:

℞ Pix liquida...℥ i
Alcohol...ʒ iv
M Sig. ʒ i on sponge for inhalation.

Or,

℞	Morphiae sulph	gr. i
	Ext. hyoscyami	grs. v
	Glycerinae,	
	Alcohol	aa ℥ iv

M Sig. ʒ s s. on sponge. Inhale.

I have used this same instrument with proper medication in the subacute laryngitis of singers and actors. For chronic laryngeal catarrh and bronchitis, and asthma with cough, the inhalation of hot, dry, medicated oxygen seems to me to deserve very favorable mention. It is an inhalation of compound oxygen heated to 300° or more Fahrenheit; this current is directed through certain medications which are easily volatilized, and I mention one or two formulæ which I have used with benefit in obstinate coughs in laryngeal and bronchial catarrh:

℞	Pulv. camphoris	ʒ iii
	Menthol	ʒ iv
	Ol. pini sylvestri	ʒ iv
	Oil of tar	℥ ii

M Sig. Gtt. ii—x. For inhalation.

Also,

℞	Thymol	grs. xv
	Eucalyptol	grs. xx
	Creosoti	ʒ ii
	Ol. pini sylvestri	ʒ iv
	Ol. gaultheriae	ʒ i

M Sig. Gtt. ii to v. For inhalation.

EGYPTIAN MEDICAL TATTOOING.

Fouquet (*Centralbl. f. Chir.*, June 25, 1898) found upon the body of a priestess who was embalmed in the 11th Dynasty—about 3,000 years B. C.—linear blue marks which he at first supposed were for ornament but which he afterward concluded were the result of some vigorous application of remedies. The marks were both above and below the umbilicus, those below running almost horizontally, while those above it ran in a vertical direction. The surgical measures were evidently taken a long time before the death of the woman, and were perhaps intended to cure her of some pelvic trouble, chronic pelvic peritonitis or whatnot. This method of introducing drugs into the body is still practised in Egypt, and the writer was able to collect details of ninety-seven cases in which it was employed. In most of them the tattooing was done upon the temples for the relief of headache or neuralgia, but in other cases the scarification was made upon the hands, feet, shoulders, knees, buttocks, neck, or abdomen. The technic of this treatment is as follows: From three to seven needles, which are bound together in a bunch, are thrust obliquely into the skin. When blood begins to flow from the punctures thus made, a mixture of milk and soot, to which the juice of various plants has been added, is rubbed into the wounds.

SELECTED ARTICLES.

FOREIGN BODIES IN THE EAR OR NOSE.[1]

By R. D. BARRET, B.S., M.D., Pattonville, Mo.

The general practitioner, especially one living in a small town or in the country, is often called upon to remove foreign bodies from the nose or ears, and many times, I am sorry to say, is at a loss as to how to proceed, or else makes clumsy, awkward, and ineffectual attempts that succeed only in frightening the patient and making matters worse instead of better. This is not the case now so much as it was a few years ago, for the lengthened courses of study and the enlarged clinical facilities of our colleges make it possible for every student to have some practical experience in examining and treating diseases of the ear and nose at some time during his college course, and hence he graduates better fitted to handle such cases than did the students of ten, fifteen, or more years ago.

Every practitioner who is so situated that he cannot send patients to a specialist should possess the few necessary instruments and familiarize himself with their use in removing foreign bodies from the nose or ear, for a little skill in this direction will often enable him to relieve a frightened patient easily and quickly, and add greatly to his reputation, if nothing else.

Foreign bodies that find their way into the nose or ear may be divided into two classes—animate and inanimate. It is with the latter that we have to deal most frequently. Of the former I will merely say that they are usually some insect which has crawled into the spaces in question during the patient's sleep. Flies are the most common, and they not infrequently deposit their eggs, sometimes within a suppurating ear, but especially in the nasal cavities, which hatch in due time, and when we have the distressing and disgusting condition of maggots in the nose or ear to contend with. But the treatment of such conditions must be reserved for consideration at some future time.

Inanimate bodies may enter the nasal cavaties in one of three ways—through the anterior nares, the posterior nares, or the walls of the cavities. The latter are usually shot or bullets from gunshot wounds, and with these we have nothing to do in this paper. Bodies entering through the posterior nares are particles of food, etc., forced in by severe spells of vomiting or attempts at swallowing when the food "goes the wrong way;" and these also we will merely mention.

---

[1] *The Medical Record.*

Foreign bodies in the ears or nose most commonly occur in children, or sometimes in lunatics, placed there of their own account. Almost anything of convenient size and shape may be found in such cases—peas, beans, pebbles, buttons, cherry stones, plum seed, sponges, paper pellets, metal rings, coins, etc. Vegetable substances, such as peas, beans, etc., are apt to swell from the heat and moisture, and thus become more difficult of extraction the longer they remain. Some writers have said that they are apt to germinate within the cavities in question, but I am inclined to doubt this.

Very few instruments are needed for the operation of removing such foreign bodies, and in fact the fewer instruments displayed the better, for a large array will only serve to frighten the patient, especially if it is a child, and thus make matters the more complicated. But a few are absolutely necessary, and, as I have said before, every practitioner in the country or small town should provide himself with them and accustom himself to their use. A good head mirror—I prefer one three inches in diameter—two pairs of angular forceps, one serrated and the other rat toothed, a pair of foreign body forceps for the nose, a good long flexible probe, a "nest" each of nasal and aural specula, and a cotton carrier, are about all that will be needed for such work. Either daylight from a good large north window, or artificial light from an Argand burner or a good coal-oil lamp may be used. The latter with a good, broad wick and clean globe can be found in almost every house, and is generally about as satisfactory as any light I have ever tried.

Have the mother or nurse take her seat upon a straight-backed, steady chair, with her back to the table or stand on which the lamp is placed in such a position that the light shines over her right shoulder. Then she should take the child on her lap, clasp its limbs between her knees, and with her right arm thrown across its body secure its arms, while with the left hand on its forehead she holds its head firmly and steadily against her right shoulder. The operator then places himself in front of the patient, seating himself upon a straight chair or stool (never use a rocking chair), and with the thumb of the left hand slightly tips up the end of the nose, while the right hand so adjusts the head mirror as to throw a flood of reflected light into the nostrils. Having located the foreign body, proceed as quickly as possible to remove it before the child becomes frightened or the nervous strain upon the mother becomes too great. No force should be used under any circumstances, lest the delicate parts be seriously injured. If possible, grasp the offending body with a pair of forceps, and by gentle traction withdraw it: or very often, as in the case appended, the flexible probe may be bent in the form of a hook of suitable size and slipped past the obstruction, then turned, and the foreign body rolled along the floor of the nasal fossa, until it either drops out or can be grasped by the fingers. Sometimes it is necessary to use a nasal speculum and dilate the nares considerably before we can locate a foreign body or effect its removal. There are a number of instruments suitable for this purpose, and the choice may be left to the fancy of the operator. For the examination, and in the majority of cases for the operation for removing the body also, the ordinary speculum resembling an open-end thimble will suffice.

They are made of German silver and come in "nests" of three, of different sizes. If one wishes a more elaborate operating instrument, I would recommend the self-retaining nasal speculum devised a few years ago by Dr. H. N. Spencer, of St. Louis, Mo. It is light, easy of manipulation, dilates perfectly and strongly, and is absolutely self-retaining.

Removing foreign bodies from the ear is usually more difficult, though the procedure is much the same as that just given. The child's head should be turned so as to bring the affected ear toward the operator, and held as directed above.

A syringe and warm water may be tried, taking care, however, not to use too much force and thereby rupture the drumhead, and also to dry the ear thoroughly afterward with a little absorbent cotton on a cotton carrier. In examining the ear the lobule is grasped between the index and middle fingers and gentle traction made upward and backward, while the thumb and index finger insinuate the speculum into the orifice with a slight rolling motion. The speculum most generally used resembles the one for the nose, except it is longer and more pointed. Like the others, they come in "nests" of three, and are made of German silver. The peculiarities of each case will suggest whether to use the syringe or the forceps in the ear and the forceps or the bent probe, etc., in the nose.

In the case of the ear great care must be exercised not to lacerate the walls of the auditory canal, as severe inflammation is apt to result from careless and rough manipulations. If the child becomes too unruly and its struggles interfere with the success of the operation, or are liable to cause the nose or ear to be injured by the instruments, it is best to administer a little chloroform. Children take chloroform easily and safely, and often a few whiffs are enough to quiet the child sufficiently to allow the operator to proceed easily and without the danger of a sudden jerk doing considerable damage to the parts involved. It is well always to explain to the parents that you are only going to give a very little of the anæsthetic, and that it will do no harm and that there is no danger, for most persons have a great dread of chloroform and become frightened at its mere mention. But if they are rightly and positively assured that their fears are groundless, very few will continue to oppose its use in the manner and to the extent I have mentioned.

The following case, met with among others in a general practice in the country, illustrates well the points I have tried to present: One evening about dark I was hastily summoned to see a child who was said to have something in her nose. On arriving at the house I found the family in a state of great excitement and alarm. The mother said that the patient, a little girl of about three and one-half years of age, while playing in the yard had put a pebble into her nose and it had slipped so far back that she could not get it out. I assured her that there was no occasion for any alarm; that it would be very easy to remove, and that even if it could not be removed at once it would do no harm should it be allowed to remain several days.

Then securing a good lamp, which I placed on the sewing-machine in lieu of a stand, I told the mother to take the child and seat herself in a chair, which I placed in position, and to hold her in the manner I have already described. When the light from my head mirror was thrown into the nostril I could easily make out the pebble lying on the floor of the right nasal fossa, well back. I grasped it with a pair of forceps, but they slipped off of its smooth, round surface; so taking a flexible probe I made a small hook of it which I readily slipped past the pebble, then turned and pulled it forward until it protruded sufficiently to be grasped by the fingers, and removed. The child was but very little frightened, struggled some, but the mother held it firmly, and it was all done so easily and quickly that she hardly had time to cry before it was all over with. Of course all cases are not so easily managed as this one; on the contrary, many of them present difficulties that will tax the ingenuity and skill of the physician to the utmost, but with a little care and patience and plenty of tact in the management of the patient and assistants, almost every case will at the first trial have as successful and happy a termination, and the physician's reputation be added to thereby.

MECHANICAL TREATMENT OF OBESITY.—Dr. Winternitz (*Therapeutische Wochenschrift*, December 5, 1897), objects to the dietetic treatment of obesity, whether the method employed is that of Harvey, Banting, or Ebstein, as these means establish inanition and are capable of producing gout, serious digestive troubles, and rebellious neurasthenic states. The recent agents, Poehl's spermin, thyroid extract, etc., favor intraorganic oxidation in a high degree, but have dangers which have been made the object of numerous communications, these troubles being especially circulatory and nervous. Muscular activity that has been so widely advised is not always good, on account of the hyperthermia that this activity produces. In noticing the change in temperature in cases in which obese patients have undergone violent exercise, we find that it is sometimes of a febrile character and that the organic albumin loses its vitality. This process consequently causes nervous debility, anæmia, and albuminuria. It is necessary to invent a means of increasing oxidation and at the same time avoid hyperthermia, in such a way as to destroy the fat without affecting the albumin. To this end Winternitz advises lowering the temperature of the body before exercise. It is easy to do this by means of a bath of 12° or 14° C., lasting fifteen or twenty minutes; by this means one can take away five hundred calories from the organism. To recuperate these, fifty grams of fat must be consumed. In order that lowering of the temperature may not cause contraction of the cutaneous vessels, he proceeds as follows: In the morning submit the patient to an energetic rubbing with a towel wet in cold water; then place him for five or ten minutes in a steam room; on leaving this room he takes a bath at a low temperature, lasting from three to six minutes. Severe muscular exercise terminates the treatment. This may be repeated two or three times in twenty-four hours. It is useless with this method to prescribe a rigid diet; the results are rapid and are never accompanied by troubles similar to those observed with the other methods.

THE VALUE OF ANTI-STREPTOCOCCIC SERUM IN THE TREATMENT OF SOME PATHOGENIC INFECTIONS.[1]

By NATHAN RAW, M.D.,
Medical Superintendent Mill-Road Infirmary, Liverpool, Eng.

So many conflicting statements have been made in the medical journals of late regarding the efficacy and real value of anti-streptococcic serum that I determined to give it an extended and thorough trial in those diseases which were found on examination to be due to infection by the streptococci. In *The Lancet* of February 19, 1898, I recorded a case of puerperal septicæmia in which the patient's life was, in my opinion, saved by this treatment and I then sounded a note of warning against the indiscriminate practice of injecting all cases of septic infection with this powerful remedy. From the very nature of things the serum can only be of service in streptococcal infections and ought never to be used until either the microscope or bacteriological examination has shown streptococci to be present in the blood or discharge. The cases under my care in which the serum has been used are 11 in number—namely, 4 cases of puerperal septicæmia, 2 cases of septic cellulitis, 2 cases of mastoid disease with septicæmia, 2 cases of erysipelas, and 1 case of puerperal sapræmia.

CASE 1.—A married woman, aged twenty-two years, a primipara, was admitted to the infirmary on October 31, 1897, suffering from puerperal septicæmia. She had been delivered 15 days previously, having been attended by a midwife. The patient's temperature was 106° F. and the pulse was 146. She was quite unconscious and wildly delirious. I curetted the uterus, removing a large quantity of placenta and stinking débris. On examination of this it was found to be swarming with streptococci which were also found in the blood. Injections of serum (20 cc. as a dose) were given at intervals with marked effect. The temperature was reduced, the delirium abated, the patient became conscious, and the pulse was reduced in rate and altogether much improved. In all she had 60 cc. of serum in four injections and made an excellent recovery.

CASE 2.—A woman, aged thirty years, was admitted to the infirmary on November 8. She had been confined of a still-born child on October 28, having been attended by a midwife. The labor was prolonged, lasting a week; 3 days later she became delirious. On admission the temperature was 103° F. and the patient had all the symptoms of puerperal septicæmia. Microscopic examination showed that streptococci were present both in the blood and in the discharge from the uterus. On November 25 the patient was put under chloroform and the uterus was scraped out and 10 cc. of serum were injected; the temperature dropped to 101° and she felt much better. She, however, developed septic pleurisy and died on December 5.

CASE 3.—A girl, aged fifteen years, was admitted to the infirmary on December 30, 1897, with a high temperature (105° F.), loss of consciousness, and acute delirium. She had a purulent discharge from the left ear and all the symptoms of mastoid abscess with meningitis. On the 31st the mastoid antrum was cleared of a lot of offensive pus and I made a free communication between the middle-ear and external meatus. The pus from the middle-ear was full of streptococci. Twenty cc. of serum were injected with an excellent result, the temperature dropped in a few hours, the headache was better, the skin was moist, and the pulse was reduced. She, however, developed septic pleurisy and died on January 1, 1898. At the post-mortem examination it was found that the lateral sinus and internal jugular were thrombosed and contained stinking thrombi.

---

[1] London *Lancet.*

Case 4.—A girl, aged nineteen years, was admitted to the infirmary on January 26, 1898, with a temperature of 105° F., suffering from a most acute attack of erysipelas which involved the head, neck, and chest. The temperature remained between 104° and 105° for 5 days and the girl was in a very critical condition. Examination showed that the blood was swarming with streptococci. Twenty cc. of serum were given on January 30 with a most astonishing result. The temperature dropped to 100° in 5 hours and the patient was more conscious and felt relieved. The temperature again rose to 105° on the next day and another 20 cc. of serum were given, with the result that it dropped in five hours to normal. It again rose next day to 104°, when 20 cc. of serum were given, bringing down the temperature to 101° and the pulse from 140 to 110. The patient had another injection on February 2 of 20 cc. of serum, after which the symptoms subsided and she made an excellent recovery. The patient had in all 80 cc.

Case 5.—A woman, aged thirty-five years, was admitted to the infirmary on February 19 with septic cellulitis of the hand and arm extending to the elbow. It had a foul and gangrenous smell and was rapidly extending. Examination of the pus showed the presence of streptococci. Under chloroform I made free incisions and removed all the sloughing material, and at the same time injected 20 cc. of serum into the affected arm. The result was magical; the arm quickly quieted down and the patient made a good recovery with a useful arm.

Case 6.—A woman, aged forty-six, was admitted to the infirmary with septic cellulitis of the arm following an injury by a rusty nail. She was extremely ill, the wrist joint was suppurating, and she had septicæmia. I laid open the joint and incised the arm and injected 20 cc. of serum. She improved considerably, but eventually succumbed to an attack of septic pericarditis.

Case 7.—A girl, aged seventeen years, was admitted to the infirmary on March 10, 1898, with all the symptoms of mastoid abscess and meningitis. Her temperature was 104° F. and she had a fœtid discharge from her left ear on March 11. I trephined the mastoid antrum and made a free communication with the external meatus, clearing out a lot of stinking pus. At the operation I injected 20 cc. of serum. On the following day she was conscious and her temperature dropped to normal. She afterwards had three injections of 10 cc. of serum each, and although she had a prolonged attack of meningitis, she made an excellent recovery. Her blood contained streptococci.

CASE 8.—A woman, aged thirty-five years, was admitted to the infirmary on March 19 suffering from puerperal septicæmia. She had been confined a week previously of a child and attended by a midwife. The uterus was scraped out and 20 cc. of serum were given three times, making in all 60 cc. After each injection she was relieved, the temperature dropped, the pulse became slower, and her headache and pain were relieved. She developed, however, septic pleurisy and pericarditis, and died on March 24.

CASE 9.—A woman, aged thirty-four, was admitted into the insane wards of the infirmary on April 17, with puerperal mania. She had a temperature of 102° F., which rapidly rose to 105°, with all the symptoms of septicæmia. Under chloroform I curetted the uterus and intra-uterine douches of mercuric chloride were given. Plate cultures were made of the blood and uterine discharge which showed an almost pure cultivation of streptococci. Ten cc. of serum were given on the 21st with a good result. She had numerous complications in the form of abscesses and infective periostitis of the femur, which were opened and drained under anæsthetics. In all she had 90 cc. of serum, which in my opinion, saved her life, as I have never seen a more complicated case.

CASE 10.—A woman, aged twenty-five years, was admitted to the infirmary on May 26, with all the symptoms of puerperal septicæmia with profound anæmia. She was delivered of a child a week before admission with placenta prævia. On admission her temperature was 105° F. and she was in a most serious condition. Under chloroform I curetted the uterus and removed nearly two ounces of stinking placenta and débris. On making plate cultivations of both the blood and the uterine discharge no streptococci could be found, but numerous staphylococci, both aureus and albus; before the result of the bacteriological examination was known, I injected 20 cc. of serum (Pasteur's). The good result noted in the previous cases was not seen here, the temperature remained high, and no further injections were given. The patient lingered until June 21, when she died from septic pleurisy and thrombosis. Post mortem a very careful bacteriological examination was made of the organs. Cultivations on Petri dishes were made from the uterus, kidneys, and lungs, and all showed a complete absence of streptococci, but numerous staphylococci and bacilli coli communis were present. The uterus was found to be almost smooth and she had septic pleuro-pneumonia.

CASE 11.—A woman, aged fifty-two years, was admitted to the infirmary on June 24, with an acute attack of erysipelas, the temperature being 105° F. She was given 20 cc. of serum with a most excellent result and completely recovered.

The above series of eleven most acute and severe infections by streptococci show six recoveries and five deaths. This is, I admit, not a very large percentage of recoveries, but it must be borne in mind that only the most acute and dangerous cases were submitted to the treatment. The most difficult part of the treatment is to determine the exact nature of the infection, whether it is due to the various forms of streptococci, or to staphylococci, or to a mixed infection of all these organisms. The bacillus coli communis is repeatedly found here, rarely alone, but generally with staphylococcus aureus; whether or not it is the same organism as the bacillus pyogenes fœtidus is a matter of uncertainty. My routine practice now is to at once submit the blood or discharge from any case of acute infection to a bacteriological examination in the laboratory, and if the presence of streptococci is demonstrated clearly to at once inject the serum. If the streptococci are not found the serum can be of no possible service, as was well shown in Case 10.

Much has yet to be done to elucidate the exact bacteriology of the various forms of sepsis, and especially to separate and individualize the streptococci. The Pasteur Institute has succeeded in obtaining an anti-streptococcic serum by injecting pure toxins, thus placing it on the same basis as anti-diphtheritic serum, but at present the composition is a secret. If this is accomplished, I feel sure it will be a great step in advance in the treatment of pyogenic infections. From a careful and prolonged use of the serum I feel convinced of its efficacy in the streptococcal infections such as puerperal septicæmia, septic cellulitis, erysipelas, and septic meningitis from middle-ear disease. The serum I now use is supplied by any druggist and is obtained from the Pasteur Institute in fluid form, as I find it more pure and free from errors in filtration. I have never seen any bad symptom from the use of the Pasteur serum if obtained comparatively fresh and injected with antiseptic precautions. The dose I prefer is 20 cc.

TREATMENT OF ACUTE CORYZA.*

By CLARENCE C. RICE, M. D.
Professor of Diseases of the Nose and Throat, Post Graduate School, New York.

The first patient who presents himself for treatment to-day gives the symptoms of an ordinary cold in the head. These patients are of particular interest to me just now because I have been following a new method of treatment whereby I believe an attack of an acute coryza may be shortened. First of all, the general condition of the nasal passages should be determined. We see a large number of patients who are constantly suffering from what they call colds in the head, in whom this is merely an acute exacerbation of a chronic condition.

We should expect frequent acute nasal catarrhs in nostrils blocked with polypi, and the same is true when a deviation of the septum is extreme enough to touch the turbinated side; also where spurs of bone and cartilage rub against the inferior turbinated. Children have acute colds as a result of nasal closure from enlarged faucial and post-nasal tonsils. In all these conditions an acute coryza is but a symptom of a real and permanent lesion, and colds in the head will be done away with by removing the irritating cause. I am glad that the case before us is not one of this sort. This patient tells us that he has colds in the head rather frequently, but when well breathes perfectly through the nostrils. We find on examination nothing more than acute congestion, swelling of the soft parts, with plentiful transudation of serum. We do not find in this case any chronic lesion which has produced this acute attack. I think it is agreed by all that in the treatment of such cases only the mildest and most sedative applications should be made to the nostrils. It is perhaps true that irritating solutions, which cause a large flow of serum from the nose, will exhaust a cold in the head more quickly than if it is left to run its ordinary course, but there is danger that we shall, in making strong applications, produce inflammation of the accessory sinuses, so that mild treatment is much the safer.

---

*Clinical lecture delivered at the New York Post Graduate Hospital.

My routine for colds in the head is as follows: First I use so mild a solution of cocaine, one-half of one per cent., that no disagreeable reaction follows. If even a solution of two per cent. of cocaine is employed we shall find that congestion is greater than ever when the blood returns to the nasal mucous membrane, whereas with one-half of one per cent. an astringent effect is obtained which is of benefit. Five minutes later I employ a combination of three powders made by McKesson & Robbins: Compound stearate of zinc, with boric acid; compound stearate of zinc, with alum, compound stearate of zinc, with cocaine. The amount of boric acid, or alum, or cocaine, in these powders is not stated by the manufacturers, but I mix the powders in an insufflator in the proportions of seventy-five per cent. of the boric acid and twelve and a half per cent. each of the alum and cocaine. This powder I have the patient use at least three times a day. He should be instructed to use the powder in such a way as not to get it into the pharynx, and this can be done by taking a full inspiration and then holding the breath while the powder is blown in, then he exhales through the nose so that the superfluous powder can be expelled before any is breathed into the pharynx. This powder has proved very valuable in protecting the mucous membrane against atmospheric influences and is, as will be seen, disinfectant and astringent.

Another important rule is to direct the patient not to blow his nose repeatedly, as serum will be reproduced in the nostrils just as rapidly as it is blown out. If the water is allowed to remain in the nose, or so much of it as the powder does not absorb, it partly prevents further transudation by its pressure effect. I do not think that oily preparations are of any special value until a later stage of a cold, and harm rather than benefit is done by washing either by spray, nasal douche cup or post-nasal syringe. In the later stages of a cold, when the nostrils have lost their irritability, and the secretions are thick, then antiseptic washing is indicated. There are some points in the constitutional treatment of a cold which are advisable to follow, such as proper laxatives, phenacetine, salol, etc.

VOMITING OF PREGNANCY.[1]

By LUTHER SEXTON, M.D.,
New Orleans, La.

The exact etiology of the nausea or vomiting of pregnacy has not been clearly determined, further than being one of the sympathetic disturbances of the pregnant state which is so common that the laity look upon it as one of the first and most reliable symptoms of pregnancy. Amongst chlorotic subjects, in malarial districts, we may often have not only morning sickness, but cessation of menses in the non-pregnant, which morbid condition should always be borne in mind in making a diagnosis when these conditions are present.

---

[1] From *The Virginia Medical Semi-Monthly.*

Owing to the nervous element in these cases, and to the influence of psychical cures, many useless drugs have been recommended, when the apparent benefit which they produced were merely coincidences never to be borne out by subsequent trial. On this account, nearly the entire list of the pharmacopœia has been more or less vaunted, when, as a matter of fact, the fewest number of drugs are the least bit helpful.

For this and other reasons, it is best not to do anything for the ordinary or simple cases, except to regulate diet, exercise, and other hygienic conditions. So long as the ingestion of food and its proper assimilation is affected, we should not even prescribe for morning sickness, unless it is the simplest placebo. A change of surroundings from city to country, or from home to mother's (always leaving the husband behind in either event), often tends to effect a cure. But when the distressing symptoms continue for several months, and the nutrition and vitality of the patient are giving away, why that is another story, in which every resource of the doctor is taxed to avoid impending disaster.

Constipation and salivation are common symptoms which aggravate the condition, to be met by 2½ grs. each of calomel and soda tablets; cascara sagrada cordial, phosphate of sodium, seidlitz powders, etc., are the simplest remedies for the constipation. If medicine by mouth nauseates, enemata of milk and eggs, or beef broth, are to be used both as food and to relieve the bowels. Glycerin suppositories and the more irritating enemata may be employed if the food enemata fail to act.

Retroversion and anteflexion of the uterus are common conditions to be corrected. Tampons of boro-glyceride in Dangla's cul-de sac, while the patient is in the knee-elbow position, will relieve the former; while an air pessary or the tampon of boro-glyceride, between the bladder and womb, with hips elevated on pillow, and constant dorsal decubitus, will sometimes relieve the latter condition. The permanent cure of flexions and versions is always effected by the development of the child, if we can prevent the premature delivery. Hard pessaries usually stretch the parts, and soon serve more as a weight to drag the womb down than as an instrument to hold it in position. The advantages of the boro-glyceride tampon over such instruments consist not only in producing less irritation, but in abstracting serum from womb and vagina, thus reducing the weight of the womb. Suppositories of one-quarter grain each of sulphate of morphia, cocaine, and extract belladonna, with two grains of iodoform (or with the iodoform left out if there is any objection to the odor) often procure rest at night, and permit the stomach to retain food.

Application of ten per cent. cocaine salve may be applied to the mouth of womb after applications of tincture of iodine or nitrate of silver solution, if there is any ulceration or tear to contend with.

Of medicinal agents for the vomiting *per se*, the best combination I have found consists of—

℞	Cocaine hydrat.	gr. j
	Bismuth subnit.	ʒ iv
	Milk magnesia.	℥ ij
	Aq. lanno cerosi.	
	Aq. cinnamoni.	aa ℥ ij

M. et. Sig.—Two teaspoonfuls every hour or two apart.

This may be followed by crushed ice, not only by the mouth, but applied to the throat or to the cervical vertebra by means of ice-bags to avoid wetting the patient.

Catarrhal conditions of the stomach are best treated by two-drop doses of Fowler's solution with five-drop doses of tinct. nucis vomicæ in essence of pepsin or simple elixir; or if this cannot be kept down, its equivalent in capsule or pill may be tried. Ingluvin is a proprietary medicine which is beneficial in these cases.

Just when to interfere in these cases by bringing on an abortion is a serious question. Primarily, none of the reputable members of the profession but would gladly be relieved of the charge of infanticide, both here and hereafter, if infanticide were all; but the risk to the mother of an abortion, when she has been so run down as to require it, is also a serious matter, as we are as likely to have two funerals as one. But regardless of these questions of conscience, there comes a time when we are compelled to interfere in the interest of the mother. Fortunately for me, this decision was never reached but in one case, and that in the person of a church patient whose family from religious teaching was against abortion, even if it cost the life of the mother, which it did in the end. Yet it is the thing to do as a last resort according to our best teachers and authors, and others who have a right to an opinion upon the subject.

The time to adopt this plan of treatment is when both stomach and rectum refuse to retain or assimilate food, the tongue becomes brown and coated, the throat dry and parched, sordes collects on the teeth, temperature rises, urine becomes scanty and albuminous, and mind wandering, disproportionate fast pulse and low temperature are present. Any two or three of the above conditions or symptoms would justify bringing on premature labor, as it is just as reprehensible to delay too long as to operate too early in such cases.

As a preliminary step, it would be well to dilate the mouth of the womb, as even this simple proceeding has stopped the vomiting in a goodly number of cases. This dilatation of the cervix, as a curative measure, was discovered by accident, by Dr. Copeman, who, being desirous of bringing on premature delivery, found that dilatation with the finger, in trying to rupture the membranes, while it did not bring on abortion, stopped the vomiting. In trying this treatment, steel sounds or dilators are sterilized or dipped in carbolic acid and inserted about half an inch into the mouth of the womb, when the dilator is opened. A boro-glyceride tampon, or piece of carbolated gauze, is inserted into the vagina. If, with other suitable treatment and perfect rest, there is no relief of the vomiting, the same procedure may be repeated within two or three days. Even when the mouth of the womb is patulous, or lacerations exist, there may be constricting bands higher up in the cervix which need stretching. At the same time, a ten per cent. solution of silver nitrate should be painted over the ulceration or tear.

Finally, if artificial termination of pregnancy is determined upon, the carbolized tupelo tent, or dilator, is the preferable method, as it often stops the vomiting long before the ovum is expelled.

APPENDICITIS AND PREGNANCY.

Pinard (*Ann. de Gynec.*, May, 1898) records a case which throws light on this subject, to which attention was first drawn by Mundé five years ago. Pinard likewise furnishes two valuable tables of cases which did (thirty) and which did not (fifteen) undergo operation for inflamed appendix during pregnancy. His own patient was a primpara, aged twenty-five. At the sixth month she was seized when walking with characteristic acute pains in the abdomen, most marked in the right iliac fossa; severe vomiting and tympanitic distension followed. At the end of five days she was very ill; general peritonitis had clearly set in. The fœtal heart was still audible. Segond operated, first making the usual incision for reaching the appendix. On opening the peritonæum a quantity of fœtid pus escaped; the right appendages literally swam in it. As it was clear that the pus extended to the other side an incision was made above the left groin, and the left tube and ovary were found swimming in pus. A double-barreled drain was passed through each wound, so that their ends met in Douglas's pouch; then the peritonæum was well washed out with hot water. The pus had come from a large retrocæcal space. The operation lasted twenty minutes. Abortion occurred the following night and the patient died a few hours later. The appendix was found to be perforated in two places. The maternal tissues were not examined for microbes, but Wallich obtained pure coli-bacillus cultures from the blood in one of the vessels in the umbilical cord. An inflamed appendix, as Mundé has shown, requires speedier surgical relief in pregnancy than under other conditions, and the fact of pregnancy must in no other sense influence the operator. In other words, it is wrong to provoke abortion or induce premature labor. There is a focus of infection especially dangerous in pregnancy, therefore it must be removed.

THE ABUSE OF STRYCHNINE AS A STIMULANT.[1]

The papers which have been published in the medical journals during the last few years emphasizing the value of strychnine as a cardiac and respiratory stimulant have been so numerous that many members of the medical profession are wont to regard it as being one of the best remedies which can be utilized to combat failure of either one of these vital functions. While we are thoroughly in accord with the view that strychnine is a powerful stimulant to these functions, we distinctly disagree with the habit which many practitioners have fallen into of employing this drug day after day for considerable periods of time for the purpose of stimulating the heart. Cases are frequently seen by us in which a physician has administered a dose of strychnine for a day or two with the result that there has been marked improvement in the symptoms. This improvement has then ceased to exist; and on the principle that the patient needed a larger dose a larger quantity has been given, until at the end of several weeks the patient has been taking quantities of this nervous stimulant and irritant which at the beginning would have been quite impossible.

---

[1] *The Therapeutic Gazette.*

As its use is continued, however, the improvement in the symptoms which first took place fails to be maintained, and finally, notwithstanding any dose that can be given, no relief is obtained from its use. In addition to the primary symptoms there is added a condition of excessive nervous irritability which in some patients is not only disagreeable but actually alarming, at least to the patient who has submitted to it, if not to the physician. Particularly is this true where very large doses of strychnine are administered to patients suffering from severe asthenic maladies, as for example in typhoid fever, tuberculosis, or epidemic influenza. In each and every one of these diseases a few doses of nux vomica or strychnine will frequently produce a noticeable improvement in the pulse and in the apparent condition of the nervous system, because strychnine being a powerful stimulant whips up the flagging nervous centers and causes them for the time being to perform their functions with greater activity. If the strychnine is persisted in, and ascending doses are given for a considerable period of time, in addition to the nervous symptoms which we have mentioned there is frequently developed an irritant fever, and particularly is this the case when strychnine is given in full doses during the later stages of typhoid fever or during convalescence from this disease, when, as is well known, anything which disturbs the nervous centers is very apt to result in a rise of temperature. Physicians are wont to watch the patient taking large doses of strychnine in order that this dose may be cut down as soon as twitching of muscles of the forearms or slight stiffness at the nape of the neck is developed, but in our experience, in asthenic patients, long before these symptoms appear there develops mental disquietude and a condition of what might be called "explosive nervousness," which is most unfortunate. This condition we have already called attention to under the name of "strychnine delirium" in an earlier issue of the *Gazette*.

Only recently we have seen several cases which emphasize these points. One was a patient suffering from typhoid fever who did not seem to take and use alcohol very well, although it was evident that his circulation required some stimulation. Strychnine was given to him in moderately large dose, with the result that for a day or two his circulation was improved, but at the end of that time the poor circulation returned and the patient began having evening rises of temperature of a considerable degree, which induced the physician in attendance to go back to the pure milk diet which had been previously rigorously enforced. As soon as the strychnine was taken away the fever ceased and it became evident that there was no reason for modifying the patient's diet. In another instance a patient, suffering from the depression of influenza during convalescence, received large ascending doses of tincture of nux vomica and became, as he expressed it, "wild with nervousness." In a third instance a student of medicine suffering from asthenopia was ordered, by a well known ophthalmologist, ascending doses of nux vomica, which he took for a period of three weeks, at the end of which time he was taking thirty drops of the tincture three times a day. When he presented himself for treatment he complained of excessive nervousness, as he expressed it, "fearful thoughts," and suffered continually from a sensation that if he was not in a condition of activity something evil would happen to him. These symptoms were entirely removed by stopping the nux vomica and by directing the patient for a few days to take more than his usual quantity of outdoor exercise.

Strychnine or nux vomica is undoubtedly a remedy possessing great powers of stimulation, but we believe that its use should be limited to those cases in which we desire to call upon the nervous system for a sudden effort, as in meeting a crisis in a case of collapse or syncope. It is the lash of the whip which applied violently to a horse about to become "mired" may sting him into such an excess of activity that he raises himself from the quicksand in which he is sinking. So in medicine strychnine may be regarded as a valuable remedy to meet an emergency, but there is nothing which indicates that its continual use as a nervous or circulatory stimulant is wise, and there is much which indicates that such use of it is unwise.

Whatever influence strychnine may exercise upon the circulation is in reality due to its effect upon the nervous system, as it is not a direct cardiac stimulant of any considerable power.

In the discussion of a paper upon diphtheria, which recently took place in New York, Dr. Winters asserted that in cases of cardiac disturbance in diphtheria he had found that strychnine was practically useless, and he stated that Dr. Welch, of Philadelphia, entertained the same views. Personally, we agree with these gentlemen to the extent indicated by the previous remarks, but in sudden cardiac failure we believe that strychnine is the remedy which affords more hope of relief than any other which we can employ, although, as is well known, sudden cardiac failure in the course of diphtheria is one of the most fatal accidents which we have to combat.

THE INFLUENCE ON GOUT OF THE MINERAL CONSTITUENTS OF VARIOUS VEGETABLES.

At a recent meeting of British Royal Medical and Chirurgical Society in London, Dr. Arthur P. Luff read a paper on this subject. Since the delivery of the Goulstonian lectures of 1897 he had carried out a series of experiments on the mineral constituents of all the vegetables in ordinary use, and the results of these experiments were embodied in the paper. The objects of this inquiry were: (1) To ascertain the relative effects exerted by the mineral constituents of various vegetables on the solubility of sodium biurate at the temperature of the human body, and therfeore presumably on uratic deposits; and (2) to ascertain the influence, if any, exerted by these constituents in retarding the conversion of the sodium quadriurate contained in the fluids of the body in gout into the biurate. Obviously the elucidation of these points would have a material bearing on the treatment of gout. The method of carrying out the experiments to ascertain the solvent effects exerted by the mineral constituents of vegetables on sodium biurate was the same as that described in the Goulstonian lectures last year.

The vegetables employed in the experiments were spinach, Brussels sprouts, potato, asparagus, Savoy cabbage, French beans, lettuce, beetroot, winter cabbage, celery, turnip tops, turnip, carrot, cauliflower, seakale, and green peas. From the results obtained it appeared that 0.05 per cent. and over of the mineral constituents of nearly all the vegetables very appreciably increased the solubility of sodium biurate. The solitary exception was in the case of the mineral constituents of green peas, which practically exerted no influence whatever on the solubility of the biurate.

He next endeavored to ascertain whether these effects were due to the alkalinity of the vegetable ashes, or whether they could be referred to any one saline constituent of the vegetables. The series of tables embodying the results of this part of the investigation demonstrated conclusively that the solvent effect of a vegetable ash on sodium biurate bore no relationship, either of a direct or an inverse ratio, to the alkalinity of the ash, or to the proportions of potassium, sodium, calcium, magnesium, and iron salts present, or to the proportions of phosphates, sulphates, and chlorides present. The following examples demonstrated this. The solvent effect on the biurate of the ash of Brussels sprouts was high, while its alkalinity was low; on the other hand, the solvent effect of the ash of celery was low, while its alkalinity was high. The solvent effect of the ash of spinach was high, while the proportion of potassium salts was low; on the other hand, the solvent effect of the ash of turnip was low, while the proportion of potassium salts was high. The solvent effect of the ash of potato was high, while the proportion of sodium salts was low; on the other hand, the solvent effect of the ash of sea-kale was low, while the proportion of sodium salts was high. Corresponding results were obtained with the calcium magnesium, and iron salts, and with the phosphates, sulphates, and chlorides present in the vegetable ashes. These results showed that the solvent effect exerted on sodium biurate by the mineral constituents of vegetables was not due to any one constituent.

He next proceeded to ascertain whether an artificially-prepared ash of the same composition as the natural ash of one of the vegetables would exercise a similar effect in increasing the solubility of sodium biurate to that possessed by the natural ash. For this method of experimentation he selected the spinach ash, which had the greatest solvent effect on the biurate. An artificial ash was prepared with the same proportions of potassium, sodium, and calcium, and of sulphates, phosphates, and chlorides as those present in the natural spinach ash, and also of precisely the same degree of alkalinity. The results of the experiments with this artificial product on the biurate showed that it exercised, in all proportions, a deterrent effect on the solubility of the biurate, whereas the natural ash exercised a marked solvent effect. The only explanation that he could offer of these remarkable results was that in the natural ash there was some combination of the mineral constituents which could not be artificially imitated, and that upon this natural combination of the salts was dependent the increased solvent effect exerted on the biurate by the mineral constituents of most vegetables. If this view were correct, then modern science was but confirming the correctness of the practice of those ancients who employed vegetable ashes in the treatment of gout.

Experiments were next undertaken in order to ascertain the effect exerted by the mineral constituents of the various vegetables on the conversion of sodium quadriurate into the biurate. It was well known from the researches of Dr. Bence Jones and of Sir W. Roberts that sodium quadriurate, which was the form in which uric acid first appeared in the blood in gout, was an unstable body, and was gradually converted by combination with the sodium carbonate of the blood into sodium biurate, which latter body, on account of its comparative insolubility, deposited in the tissues and then constituted the gouty uratic deposit. It was obviously of therapeutical importance to know whether the mineral constituents of any of the vegetables, in addition to exerting an increased solvent effect on the biurate, possessed the power of delaying the conversion of the quadriurate into the biurate. The results of the experiments undertaken with that object showed that the mineral constituents of some of the vegetables—notably spinach, Brussels sprouts, French beans, cabbage, turnip tops, and turnips—very considerably delayed the conversion of the quadriurate into the biurate. The inference was that if such mineral constituents were present in suitable proportions in the blood of gouty subjects, and if at the same time proper measures were adopted for promoting the excretion of the quadriurate by the kidneys, the elimination of that body might be secured without the occurrence of any precipitation of the biurate into the tissues.

The net results of all the experiments indicated that the mineral constituents of most vegetables increased the solubility of sodium biurate, and also in several cases delayed for considerable periods the conversion of the sodium quadriurate into the biurate. On the other hand, the mineral constituents of meat diminished the solubility of the biurate, and, as he had shown elsewhere, exercised but little effect in delaying the conversion of the quadriurate into the biurate. He wished it to be clearly understood that he did not attribute the different effects of animal and vegetable diets on gouty subjects to the saline constituents alone. He thought, however, that the result of these experiments clearly showed that it was to the different mineral constituents of animal and vegetable foods, and to the different physical effects they exercised on the quadriurate and biurate, that one must look for a partial and perhaps a main explanation of the known facts that an excessive diet of the one tended to produce gout, and of the other tended to retard it. From the results of these experiments it appeared that certain vegetables stood out prominently with regard to the effect exercised by their mineral constituents in both retarding the conversion of the sodium quadriurate into the biurate and in increasing the solubility of the latter. These vegetables were spinach, Brussels sprouts, French beans, winter cabbage, Savoy cabbage, turnip-tops, turnips and celery. These were the vegetables which he considered likely to prove most beneficial to gouty subjects. Of these, in so far as the effects produced by their mineral constituents were concerned, spinach occupied the foremost place both as regards inhibiting the decomposition of the quadriurate and increasing the solubility of the biurate. On account of this double beneficial action possessed by vegetable ashes on the chemical portion of the gouty process, it had occurred to him that the free use of a table salt composed of the ashes of certain of the vegetables in place of common salt might prove advantageous to the gouty. He was, therefore, having different mixtures of the mineral constituents of various vegetables prepared, with which he proposed to experiment in order to ascertain which combination was likely to prove the most efficacious to gouty subjects. He hoped to be able shortly to publish the results of his experiments with these vegetable table salts.

Dr. Ewart congratulated the Society and the author on the valuable paper, and hoped that therapeutic success would follow these researches.

Dr. Haig considered that the conclusions of this laborious paper did not represent much, for the author could not say how the salts acted. By grouping the author's results differently he was able to show that they supported the views put forward long ago by Sir A. Garrod, and since confirmed by himself. Thus, potassium and sodium salts increased the solubility, while calcium salts and acid radicles interfered with the solubility of uric acid and its compounds. Thus, spinach, containing 54.8 of soda and potash and but little in the way of calcium salts or acid radicles, was a good solvent; while sea kale, in which there was an excess of the acid radicles and of calcium salts over the potash and soda was a poor solvent; cabbage came between these two, both as regards the salts it contained and its solvent properties. The results were due to the balance of the constituents, not to any one element. Green pea contained much albumen, which tended to raise the acidity of the blood, and thus was not such a solvent as might be expected from the chemical constitution of its ash (44 alkali, 42 acid). Dr. Luff's "table salt" ought to be made of salts rendering urates soluble, and to be free from sulphates, calcium salts, iron, ammonia and acid radicles. He did not, however, attach much importance to such a "table salt." Gout was due to poisoning by tea and meat, and could be cured by preventing the ingestion of uric acid.

Dr. Luff, in reply, said he did not propose to discuss the question whether uric acid was introduced by food, as it did not come within the limits of his paper. Dr. Haig had missed the point. The experiments detailed in the paper dealt with sodium biurate, which was precipitated into the tissues and joints in gout, and not with uric acid. The characters of these two bodies were very different.

MODE OF ACTION OF SODIUM CARBONATE AND SALICYLATE IN CASES OF GOUT, RHEUMATISM AND ELIMINATION OF URIC ACID.

Mordhorst *(Centralbl. f. Inn. Med.,* April 23) has carried out a number of investigations by placing more or less diluted solutions of uric acid in soda solutions under the microscope and watching the effect of the addition of sodium carbonate and various other sodium-salts. These, in general, caused the precipitation of amorphous urates, which could subsequently be redissolved. It is concluded that the addition of the various salts of sodium to a solution of uric acid causes the precipitation of amorphous urates, which maintain their form for considerable periods, though they may become paler. The addition of an excess of soda causes their precipitation, while the addition of sodium salicylate hinders their precipitation, or their resolution if already precipitated, while the granules that are not dissolved are converted into needles or stars. Another series of experiments was made with serous membranes, and careful investigation was made into the chemic composition of the urine, particularly with reference to the presence of bicarbonates and carbonates. As a result of these it is concluded that the symptoms of rheumatism depend upon the accumulation of amorphous urates in the connective tissues, and especially in the cartilages. The alkalinity of the tissue-juices depends upon the presence of sodium carbonate. The precipitation of the amorphous urates is favored by acids, and hindered by salicylic acid or sodium bicarbonate. Sodium hydrate hinders the conversion of the urates into needles. The improvement in the symptoms, therefore, after the administration of the salicylates or the bicarbonates is easily understood, but it is desirable, in order to prevent calcification, to use mineral waters that contain the minimum quantity of calcium-salts.

For Coryza of Children.—One drop of a two per cent. solution of cocaine (in equal parts of distilled water and glycerin), instilled into each nostril three or four times daily with a medicine-dropper, causes immediate opening of the nasal passages; so that the child can readily breathe through the nose and rhinoscopy can be carried out. This method is not dangerous, and the effect can be readily estimated by watching pupillary dilatations. It may be employed even for nurslings.—Naegeli-Akerblom (*Ther. Woch.*, No. 57, '97).

PROGRESS OF MEDICINE

BRAIN TUMOR.

A "symposium" on this subject took place in the the Section of Neurology and Medical Jurisprudence at the recent meeting of the American Medical Association. C. H. Hughes (St. Louis) discussed the Symptomatology; F. Peterson (New York) Localization; E. Jackson (Denver) Ocular Symptoms; P. C. Knapp (Boston) Treatment from the Neurological Aspect; and W. W. Keen (Philadelphia) Treatment from the Surgical Aspect.

Hughes said that conditions of the intracerebral circulation, excited by or preceding the development of a neoplasm, glioma, or other growth within the brain, by a morbid cause projecting within it from the brain's enveloping membranes of bony covering, caused a symptomatology—cephalalgia, neuro-retinitis often, and sometimes glaucoma—that might exist indenpendently of any form of intracerebral or intracranial morbid growth. Hysteria complicated, even as it was sometimes complicated by, cerebral tumor. Altered cerebral circulatory states, especially of vasomotor origin, independent of intracranial growths, were not continuous as tumors were. Chief among the persisting signs were the ocular fundus and pupillary signs, the paralysis of cerebral source, monoplegias, hemiplegias, etc., monospasm, hemispasm, etc., tremors, epilepsy, vertigo, paralysis of sensory, motor and special senses, incoordination, anæsthesia and pain due to regional or general cerebral irritation or pressure and degeneration due to intracranial pressure. Such a symptomatology opened the possibilities and consequences of cerebral sclerosis, atheromatous, inflammatory, or specific vascular changes, emboli, thrombi, or thrombotic inflammation of vessels, apoplectic sequelæ, abscesses, interstitial nephritis, uræmic, alcoholic or other toxipathies, involving the brain, its vessels, texture, or coverings, and serous, ventricular, or subarachnoid effusions. Insanity was often a marked symptom of tumors.

Peterson presented several charts, one showing the localizatoin of functions in the cortex, another showing the centers of language and the result of their lesions.

Jackson referred to optic neuritis as the most striking and significant symptom of brain tumor occurring in 80 or 90 per cent. in all cases. It could not, however, be regarded as pathognomonic, and it was of little value in indicating the location of the tumor. The typical optic neuritis of brain tumor was characterized by great swelling, sometimes 10 or 12

D. (3 millimeters), abruptly limited, at no great distance from the margin of the disk; with arteries narrowed, veins dilated and very, tortuous, and small vessels much enlarged but not very numerous, because scattered through the swollen tissue; small flame-shaped hæmorrhages upon or near the papilla; the other portions of the fundus, except for the alteration in the vessels, being normal or presenting changes that were in most cases slight as compared with those at the disk. In contrast, swelling and discoloration of the disk, occurring as an anomaly, were never of very high degree. Jackson also referred to optic atrophy, changes in the pupil, with impairment of accommodation, paresis of the extraocular muscles, nystagmus, impairment of central vision and limitation of the field of vision, and impairment of color perception.

Knapp said that of 405 cases collected by him the growth in 34 was found but could not be removed; in 92 it was not found at the point of operation; and in 224 it was found, but in 34 of these it was of such a nature that it could not be wholly removed; in 55, or 14 per cent., the operation was palliative, and in some of these there was perhaps a mistake in diagnosis. He was not very sanguine as to the results of operation in cases of tumor, but he dwelt upon the advisability of operative procedure for gummata and tuberculous growths. The greatest danger was associated with sarcomata and gliomata, the likelihood of recurrence being especially marked.

Keen referred to the difficulty of localization, and urged that every case of brain tumor be subjected to faradism during the operatin before the tumor or the brain was touched. As to the technique of the operation, Keen advocated a very large opening, as giving a better opportunity to ascertain the location of the tumor.

SUDDEN DEATH IN INFANTS: "ASTHMA THYMICUM" (?).

Lange (*Centralbl. f. Gynak.*, No. 20, 1898), speaking at Leipsic of a case of sudden death where the thymus was found enlarged, raised a discussion on the whole subject. Krönig was of opinion that rapid death of an infant should always be attributed to sepsis. It is in new-born infants that the purest examples of "bacteriæmia" are to be found, not a trace of disease being visible at the necropsy, even at the umbilical wound, when the blood is full of colonies of streptococci. Lange's patient died suddenly at 3½ months; it had been treated for gonorrhœal ophthalmia in an out-patient department, and had been weighed every week. It was not under weight, and it died suddenly, early in the morning, without any symptoms of acute or subacute mischief in the respiratory tract. The trachea, just 1 inch above the bifurcation, was contracted so that its lumen, not absolutely effaced, was like the hollow in the sheath of a sword. This contraction was due to the thymus, which weighed over three-quarters of an ounce measured 1 inch in thickness, and closely embraced and compressed the trachea. Structural changes were detected in the tracheal tissues.

Lange claims that this case is the first recorded in which purely mechanical and persistent compression of the trachea by the thymus was sufficient to kill. He showed the parts, and with them another instructive preparation of hyperplasia of the thymus without visible compression of the trachea, from an infant who had died suddenly from after-attacks of spasm of the glottis.

Zweifel had his doubts about the cause of death in Lange's first case, as the lumen of the trachea was entirely obstructed. Asthma thymicum might cause death, but there was great difference of opinion concerning that disease.

HOT-AIR TREATMENT OF JOINTS.

Charles H. Frazier[1] gives the results, and his conclusions drawn, after using some 300 baths to test its efficacy. The apparatus which he describes does not differ in principle from the ordinary forms which are at present much used. The time given to the bath varied from three-quarters to one-hour, care being taken to keep free ventilation for the escape of moisture; and, if necessary, the limb was wiped off during the bath to insure its dryness. The temperature of the bath averaged about 300° F., and in one instance, it registered 375° without discomfort on the part of the patient. In drawing his conclusions, he considers, first, the probable pathological conditions in the joint to be dealt with, and classifies these into (1) those of rheumatic origin, (2) those of tubercular origin, and (3) those of traumatic origin. In the rheumatic, the synovial membrane, ligaments, cartilages and periarticular structures are all involved to a greater or less extent, and consist of thickening with slight injection, and with hyperplasia of the ligamentous structures, which interferes with the movements of the joints. The cartilages are frequently rough, and present erosions. In tubercular joints, there is also a general involvement of all the structures. In the chronic traumatic forms, the articular structures are stiffened with plastic exudate, which afterwards forms a fibrous tissue and adhesions, which are the results of blood-clots or an exudation which bind together the folds of the synovial membrane or the articular surfaces.

Judging the individual case from this point of view, he considers that the gain to be accomplished may be accurately judged in the different cases, if the effects by the prolonged use of heat are regarded. The results of this heat are a diffuse hyperemia of the skin showing a dilatation of the capillaries; there is usually the sensation of a numbness of the part, which he considers due to the action of the heat on the superficial sensory nerve filaments; the body temperature of the patient is about one-half to one degree above normal; the pulse is increased from about ten to twenty beats—all of which suggests an increase of blood-supply to the active part. The patient usually experiences less pain, and more freedom in movement after the application of the heat, which may be due to the anesthetic effect of the heat on the nerve-supply of the joint. Experimentally, the physiological effect of such heat has been shown to be increased arterial tension, the elevation of blood-pressure, dilatation of the blood-vessels, diminution of the erythrocytes, decrease of hæmoglobin, increase in the elimination of nitrogen, and increase in the frequency of the heart's action.

---

[1] Annals of Surgery, October, 1897, page 455.

The beneficial action of the heat cannot be explained on any constitutional effect where there is a diathesis, but we must consider the result as due to the local influence; and he questions the advisability of this form of treatment to any acute conditions, which are due to any form of infection, or to a diathesis; and particularly may this question be raised in those cases of rheumatic origin in which we theoretically would not wish to decrease the amount of nitrogen eliminated, or for the acute conditions of joints due to some specific form of inflammation, as for instance, tubercular, in which the advisability of increasing the hyperemia would be questionable. Excluding these cases, there is left only those of traumatic origin, and it is in these that this form of treatment has proved most useful. For in this condition, after a joint has been restored to its normal activity, there is no danger of inflammation from any latent diathesis or germ. This does not, however, apply to joints (tubercular, for instance) which have been healed, in which there remains only the result of the previous inflammation.

The details of treatment in 25 cases are given, with the results, both beneficial and negative.

The physiological effect of the local application of hot air on general metabolism is considered separately, and the results by different observers are quoted. Experiments were made by the author upon the patients with the same end in view, and in general coincide with the results of other observers, except in regard to the elimination of nitrogen, the results in his experiments rather pointing to the decreased elimination by the treatment.

He gives the following conclusions of the physiological effects of hot air: (1) temporarily increased circulation, respiration and fever; (2) moderate fungacious local anæsthesia; (3) loss of weight, probably due to loss of water from the skin and lungs; (4) a decreased nitrogenous output; (5) the effects of hot-air baths are purely local in origin.

GONORRHOEAL INFLAMMATION OF JOINT TENDON SHEATHS AND BURSAE.

Nasse[1] considers that this form of arthritis has many varieties, but he classifies them roughly under three types: One, characterized by pain as a most prominent symptom, with effusion into the joint, but with little affection of the capsule; another considered more serious, in which the periarticular tissues are involved, there being little or no joint diffusion, although there may be deposits of pus or fibrino-purulent material; and a third, which is fortunately less common, but has the characteristics of pyemic joint suppuration, which may extend into the periarticular structures resulting in cellulitis. These cases are probably not due to the gonococci, but to other pyogenic organisms. The inflammation of a tendon sheath he considered as common, either alone, or accompanying the arthritis, but with mild constitutional symptoms. The inflammation of the synovial bursæ resembles closely that of the joints and the tendon sheath, but the inflammation is less marked. He considers the treatment to be expectant, consisting of rest and compression, with immobilization, and only in the more severe cases should operative treatment on the joint be attempted, and particularly is this true during any stage of the activity of the original condition. It is usually possible to find the organism in the joints, he having found it in 19 cases out of 30, which were examined for this purpose. The fact is that these metastases usually come late, but not necessarily so, and the process is apparently dependent on the infection of the deeper layers of the mucous membrane of the urethra, rather than to any particular region. Sometimes trauma seems to play a certain part in determining the localization of the metastases.

---

[1] Sammelung. Klin. Vorträge, N. F., No. 181.

THE TREATMENT OF GONORRHOEA IN WOMEN.

Fürst (*Therap. Monatshefte*, April, 1898), has found protargol to be the safest and best application in the treatment of gonorrhœa in women. By it a cure can be effected with considerable certainty in three weeks. For therapeutic purposes cases may be divided into two groups: (1) those in which the parts below the external os alone, (2) those in which the parts above—namely, the cervical canal and the endometrium, and occasionally the tubes, are involved. Simple gonorrhœal vaginitis is rare, and is usually secondary to either descending or ascending infection. Hence it is of the greatest importance in every case of cervical gonorrhœa to treat the endometrium at the same time, even if still healthy, in order to prevent its secondary infection. A thorough treatment of the endometrium is now possible without fear of doing more harm than good since protargol is not irritating. A. In the second group of cases the author's method is as follows: (1) The vulva and vagina are cleaned and disinfected, (2) the cervix is gently pulled down, and when necessary the internal os enlarged with dilators; (3) the uterus is washed out with sterile tepid water; (4) then with at least 3½ pints of a ½ per cent. protargol solution; next, if this produces no irritation, with (5) a 1 per cent. solution; (6) the vagina is dried with sterile cotton wool, and a 5 per cent. protargol bougie passed into the cervical canal, and kept in place with a tampon; (7) after fifteen minutes, when the bougie will have melted, the tampon is removed, the vagina dried with wool, and a 10 per cent. protargol-glycerine tampon introduced; (8) after twenty-four hours the same process is repeated, and every day for five to seven days, only the protargol solution is strengthened gradually to 2½ per cent., and the bougies to 10 per cent. The woman should keep in bed for the first week of treatment; (9) although at the end of this time no gonococci can be found, it is necessary to repeat the process every other day during the second week; on the alternate days astringent solutions (2½ per cent. bismuth subnitrate with glycerine and water), and bougies of boro-phenol-alum 1 per cent. are used, though the tampon is still of protargol glycerine; (10) during the third week astringents alone are employed (a daily injection of the bismuth with one alum bougie and tampons of glycerine of tannin); (11) the cure is thus completed in three weeks, but it is well for the woman to continue the injections herself for a time. Relapses take place practically only when reinfection occurs from gonorrhœal salpingitis, against which of course the protargol treatment is powerless. In 8 out of every 10 cases of virulent discharge the primary site is the cervix and uterus, and the above treatment applies.

B. In the few remaining cases where a gonorrhœal vaginitis is primary its site is in the lower third near the vulva. Here treatment is much simpler. (1) Any desquamated mucosa is touched with lunar caustic; (2) injections of 5 per cent. protargol solution and tampons of 10 per cent. glycerine of protargol; (3) later the treatment is astringent. Of course in these cases any vulvitis, Bartholinitis, or urethritis must be treated also. The author always washes out the bladder, as a prophylactic measure, with 1 per cent. protargol solution, or if cystitis is already present with 2½ per cent., and leaves a 5 per cent. protargol bougie in the urethra, which is one of the commonest places from which relapses start.

THE TREATMENT OF ACUTE ARTICULAR RHEUMATISM BY INTRAVENOUS INJECTIONS OF SUBLIMATE.

Dr. Gustav Singer details (*Centralbl. fur Gesamuta Therap.*) the process as follows: The arm is left hanging over the edge of the bed, in order to bring the veins into prominence, or a compress above the elbow is employed for this purpose. The skin in the region of the elbow is then disinfected, first by energetic rubbing with soft soap and warm water, next with a one-tenth per cent. sublimate solution, and lastly with ether and alcohol. A sterilized syringe provided with an asbestos piston is filled with the solution and inserted into the lumen of the vein in the direction of the blood-current and parallel to its course. As soon as the color of the solution in the syringe has indicated that the needle has entered the vein (blood entering reddens the solution), the compress is removed and the injection is slowly made. The point of insertion is covered with the finger, the needle removed, and the opening closed with iodoform-gauze and an appropriate bandage. The solution employed is: corrosive mercuric chloride, 1 or 2; sodium chloride, 1 or 2; distilled water, 10. The dose of sublimate is from 1-6 to 1-3 grain. The only difficulty is found in the insertion of the needle into the vein. Sometimes a little blood escapes from the vein under the skin, forming a small but painless sugillation. The injection can be made alternately in each arm. Six to ten injections in the course of treatment, at most, being necessary, it is well to begin near the wrist, and later inject near the elbow. If the weaker solution is employed, daily injections are in order; if the stronger, then once in two days is sufficient. The mouth and teeth must be carefully looked after and cleansed. For this purpose potassium chlorate is used as a mouth-wash. Of the eleven patients under observation, one developed diarrhœal stools, with small amount of blood, and two albuminuria; but casts were not found. The results which were observed from this treatment were: 1. The pains were lessened, and consequently sleep was permitted. 2. Swelling was remarkably diminished in the joints primarily affected, but secondary infection of other joints was not prevented. This is not an argument against the use of this method, for it occurs with others—e. g., the use of salicylates. 3. If the injections are given in the morning, the expected rise of temperature is postponed for several hours, lessened, or abolished altogether. The indications of this method are: Acute articular rheumatism of infectious initial processes (erysipelas, phlegmon, puerperal affections) or peculiar history (chills, recurring endocarditis, frequent exacerbation, protracted sub-acute course, metastases) which point towards a pyemic character. In acute disease, when the salicylates are forbidden, or when the inflammation is localized in single joints, this method is recommended. The contra indications are to be found in very weak individuals, severe renal degeneration, and by onset of severe symptoms of poisoning.

MALARIA CURED WITHOUT QUININE.—A REMINISCENCE.

Dr. N. S. Black, writing from Uchee, Ala. (*Med. Sum.*), which was once a very wealthy section of the country, with large plantations and numerous slaves, says: During the war every plantation had adopted some diaphoretic teas, as they said, "to sweat the fever off." When I returned from that unfortunate conflict I found that a great deal of rich Cowikee Creek land had been recently cleared, and in August and September, from decaying timbers, we had a perfect epidemic of bilious or malarial fever. I was young and tough and certainly rode to a tremendous practice.

I soon found that to begin a case with calomel I frequently had enteritis with tympanites. I had no time to produce and treat that trouble. Doctors were scarce, and cases coming in by the hundreds; I would have 20 to 30 cases frequently the same day on the same farm. Something had to be done that would expedite the recovery of my cases in order that I might move on to others that were sending for me in every direction. I decided to disgorge the stomach and allow the bowels to contend with their own poisonous contents, and I would have no more enteritis. I brought ipecac, as a safe emetic, into service, and to every case, black or white, where that drug was at all admissible, I gave an emetic dose, followed by a draught of warm water. I would then order a course of calomel, to be given as soon as the stomach became quiet; would also advise that they drink freely of their sweating teas. Quinine was so high that it alone would have cost hundreds of dollars in such a practice had I adopted that treatment. Seventy-five per cent. of my cases required only the second visit, some the third and there were a few demanded more attention.

I met an old physician that was not in practice who said: "Doctor, I have always accepted the theory that our mission was not to cure diseases, but to come to the relief of fagging nature and she would cure herself, but you certainly cure malarial fever." "Oh, well," said I, "that is precisely the theory that I am running on now. Nature is deluged with this avalanche of malaria, and, like a drowning man, requires immediate attention or none at all. I simply open up the floodgates of the system by bringing ipecac to bear at short range upon the stomach; calomel then acts splendidly after that drug, and as for some of these sweating teas, they frequently paint the clothing and bed sheets of a bright saffron color from perspiration, then nature is ready to do her part."

INFANTILE COLITIS.

Calmels, working with Guinon, draws attention (*These de Paris*, 1898) to the importance of this affection, which is one of the most important diseases to which children are liable, and one which is not so commonly recognized as it deserves to be. The writer points out that acute colitis may occur in the first months of infancy independently of any diathetic condition; but when affecting older children, especially when chronic, there is almost always a neuro-arthritic heredity, the father often being gouty, the mother hysterical or neurasthenic. Such patients are themselves neurotic and irritable. It may even occur that the parents of children suffering from chronic colitis are themselves the subjects of intestinal disorders. Under these circumstances, more than one child in a family may suffer from colitis. Constipation is a very important factor.

Clinically, chronic colitis may manifest itself in two forms, the indolent and the enteralgic types, or it may even be paroxysmal. It appears, especially after the second year, in children who have been habitually constipated, and its mode of onset may either be insidious, accompanied by indefinite colic during digestion, and alternating diarrhœa and constipation, or else it may come on as the result of an attack of acute enteritis. The subjects of this disease present what the author considers a typical facies. They are pale, anæmic, sometimes with pigmentation of the skin of the face and neck. There are dark circles round the eyes, the cheeks are red, and round the nose the skin presents a peculiar yellow tint. Not infrequently the lips are of a vermilion red. The patients are wasted, their feet are cold and their hands burning; the tongue is white and coated at the base, red at the point. The breath is fœtid, and the abdomen either retracted or distended. On physical examination the abdomen may or may not be tender; in some cases the least touch causes the patient to cry out and the tenderness is more marked over the sigmoid flexure.

In other cases it is possible to ascertain the presence of scybalous masses on palpation. Such patients hardly ever have an evacuation of the bowels without artificial means, and the effort is generally accompanied by the presence of blood and not infrequently prolapse. The fæces are hard, dark and fœtid, sometimes covered with mucus. In some instances attacks of diarrhœa supervene at intervals. The appetite is absent or capricious; digestion is slow and accompanied by flushing of the face, eructations and colic; sleep is broken, and night sweating is sometimes abundant. The urine is dark and contains indican. The liver is increased in size. These patients are depressed, irascible and indolent. Growth is tardy, and they suffer from a constant want of energy and disinclination to play or amuse themselves. The author points out that at no time do such patients present any appearance of rickets. They grow into dyspeptic or neurasthenic subjects, and are generally below average stature. There may be enteroptosis, movable kidney, etc., in adult life.

The writer mentions that intestinal hæmorrhage, appendicitis, ascites are the most frequent complications, and as a rule skin eruptions of some kind are present. The treatment is often difficult. The writer records a good number of observations in which much benefit was derived from hot compresses, enemata of boiled water injected fairly high up into the intestine, taking care not to introduce too much fluid at a time. Castor oil is the best kind of laxative for constipation. The diet should consist of light soups, well stewed fruit, boiled fish, boiled eggs, panada and milk combined with magnesia. Warm douching, accompanied by friction, seems particularly good in some cases, but the abdomen should not be douched.

TREATMENT OF COLITIS.

Guinon (*Rev. Mens. des Mal. de l'Enf.*, 1898, p. 113, 243) distinguishes three main varieties of colitis in children—acute simple, dysenteriform and chronic. In the first variety, which occurs usually in hot weather, the attack comes on with fever, vomiting and diarrhœa of watery fæcal stools. The characteristic symptoms become quickly established—colic accompanied by tenesmus, and the passage at frequent intervals of small stools which have an offensive odor, and consist entirely or in large part of mucus streaked with blood. In severe cases the pain may be so great that the preliminary purgative indicated as a general rule cannot be used. Hot compresses should be kept constantly applied to the belly; a warm bath may be given twice in the day and a single ænema containing opium; by the mouth antipyrin, and if this fails to give relief chloral should be given. Milk and all solid food should be withdrawn, and the child given only broths and thin gruels, or "albuminous barley water," made by beating the white of an egg in barley water. As soon as the acute symptoms have subsided, small rectal injections of warm solutions containing common salt (gr. ij to ℥ j) or sodium biborate (gr. j to ℥ j) should be given.

Antiseptic drugs are contraindicated owing to their irrigating qualities. In the dysenteriform the fever is higher, the colic more severe, and there is marked tenderness over the colon, accompanied by contraction of the abdominal muscles. The stools consist of mucus mingled with blood; in some cases so intimately as to resemble pneumonic sputum. In cases of this type ipecacuanha is the best remedy, given in small doses every two hours with a little opium. If after three or four days the stools have not become fæcal, a copious injection of warm solution of silver nitrate (gr. ij to Oj) should be given. If symptoms of collapse ensue, subcutaneous injections of artificial serum (physiological salt solution) should be given. As much as a pint may be injected in this way in the course of twenty-four hours. In the chronic form the regulation of the diet is the most important point, and it may be necessary altogether to withdraw milk for some time. Particular attention should be given to guarding against constipation, which is very apt to ensue, and to lead to a fresh attack of colitis determined by the irritation caused by the retained fæces. Of drugs calomel in minute doses, and a simple mixture of hydrochloric acid are the most generally useful. Hot baths, and hot compresses to the belly night and morning are also useful.

THE TREATMENT OF EPIDEMIC CEREBRO-SPINAL MENINGITIS.

In a course on the above subject, delivered before the Society of Hospital Physicians on September 15, 1897, Dr. Béla Angyán (*Ung. med. Presse*, 1897) outlines its treatment with special reference to his employment of corrosive sublimate. As there is no specific remedy for this disease, treatment must be symptomatic. As antiphlogistics, venesection, local blood letting, ice applications, and finally mercurial inunctions are recommended. Leeches, according to the speaker's experience, lessen the headache and the nervous manifstations; he recommends blood letting only in the so-called hyperacute cases, and even then only in strong individuals and in the beginning of the disease. The patients do not bear cold baths well, and a resulting collapse is not infrequent. Cold douches applied to the head and back of the neck for several minutes every three or four hours is very beneficial, especially in attacks of soporous coma. Prolonged ice poultices produce a marked antiphlogistic effect; an ice bag should be applied to the head and nape of the neck, and the Chapman coil to the spine, but only so long as they are borne with comfort by the patient. The pain is lessened, the nervous manifestations are allayed, and often a quiet sleep supervenes. The mercurial treatment in the form of calomel or inunctions, which the French were first to recommend, continues at the present day to play an important rôle in the therapy of epidemic meningitis. Narcotics are to be used with great caution, and only in those cases marked by intense nervous excitability, by uncontrollable vomiting, or by marked wakefulness. They are contraindicated when somnolence, lethargy, or depression of the nervous system exists, or when collapse is to be feared. The indication for excitants and analeptics is restricted to a very narrow field, chiefly to cases in which narcotics are contraindicated. Vesicants and the like are not to be used. Since in epidemic meningitis the brain and chord are subjected to great pressure by the accumulation of cerebro-spinal fluid, it would seem *a priori* that Quincke's procedure—aspiration of the cerebro-spinal fluid by lumbar puncture, to relieve the pressure on the brain and cord—is a rational one. Warm baths, recommended by Aufrecht, seem to have a favorable influence on the heart's action, but no conclusions should be based on the small number of cases thus far treated. The speaker confines his treatment to the use of the ice bag and the subcutaneous injection of bichloride of mercury. The sublimate, given hypodermatically, is more rapid and energetic in its action; entering the circulation, it has an antimycotic effect on the toxic blood serum. Injections of one centigram in adults, and of from 0.005 to 0.05 gm. in children, are made daily along the course of the spinal column. In acute cases they are repeated as long as fever continues and the headache, backache, and stiffness of the neck remain; in subacute cases they are repeated as long as exacerbations exist. In this manner he has treated twenty-seven cases, acute and subacute—six females and twenty-one males, ranging in age from three to thirty years. Nineteen, or 70.3 per cent., recovered. As to the number of injections individual cases varied from four to twenty-four. The injections were well borne by the patients; in one case after the fourteenth injection there resulted slight salivation; in six others there was diarrhœa unaccompanied by salivation. The following results from the injections were observed: 1. In most cases after the second or third injection the mind became clearer, the excitability was allayed, the headache was less marked, and the patient could sleep. 2. After five or six injections clear cerebration usually reappeared, and sleep became quieter and was of longer duration. 3. After seven, eight, or nine injections the retraction of the head was less marked and gradually disappeared; the fever diminished and finally subsided. 4. The sublimate injections seem neither to lengthen nor to shorten the progress of the disease. 5. The sublimate seems, after employment for several days, to check the formation of products of inflammation. In confirmation of this are those cases seen at autopsy in which a small amount only of inflammatory product could be demonstrated; and even this was more often fibrinous than purulent in character.

TRENDELENBURG'S OPERATION FOR VARICOSE VEINS.

Cumston (*Annals of Surgery*, May, 1898) regards Trendelenburg's operation as the ideal method of treating varicose veins of the lower extremity associated with extensive ulceration. Trendelenburg found by experiments that the veins of the leg, after they had been temporarily emptied by elevation of the limb and compression of the trunk of the saphenous vein, are refilled slowly by the return blood coming from the arteries, and instantly by a blood wave coming from above downwards. The conclusion that the veins in the leg are distended by great central pressure led this surgeon to advise ligature of the saphenous vein at two points and excision of the vessel between the ligatures. An incision about 4 inches in length is made over the saphenous trunk, beginning just above the union of the lower with the middle third of the thigh. The vein having been exposed is carefully freed with a blunt dissector, and all branches going off from the vessel are ligatured. A ligature is then placed on the venous trunk at the upper and another at the lower angle of the skin incision, and the portion of vein between these two ligatures is cut away with scissors. Cumston's experience has led him to the conclusion that Trendelenburg's operation is certainly the greatest advance that has ever been made in the treatment of ectasis of the saphenous vein, and although every case submitted to this treatment has not resulted in a complete cure, it is almost always followed by marked improvement with rapid cicatrization of the ulcers.

THE USE AND ABUSE OF ANTISEPTIC AND GERMICIDE REMEDIES.

G. Vivian Poore, M. D., (*The Practitioner*), after comparing "the present rage for coal-tar products" to the high esteem in which tar-water was held by Bishop Berkeley and others of over a hundred years ago, gives a long list of antipyretics and antiseptics derived from the refuse of gas-works, and admits that many of them are of undoubted value. Attention is called to the antiseptic character of many condiments and articles of diet, which may check fermentations of various kinds in the alimentary tract. Vegetables containing allyl are of this class, the most useful of which are onions, mustard and horseradish. The aromatic herbs employed in cookery are also antiseptic, and are most used with those aliments (*e. g.*, duck, pork) which are liable to undergo fermentation during digestion.

Experiment has shown that the growth of Aspergillus niger is arrested by one-sixteen-hundred-thousandth of silver nitrate, of one-fifty thousandth of mercuric nitrate, or of one-two-hundred-and-fortieth of copper sulphate. Koch found that one part in sixteen hundred thousand of perchloride of mercury hindered the growth of Bacillus anthracis, that one in three hundred thousand arrested the growth, and that one in twenty thousand destroyed the spore. Next in potency is oil of mustard, of which one part in three hundred and thirty thousand hinders, and one in thirty-three thousand arrests the growth of this bacillus; while allyl alcohol oil of turpentine, thymol, and peppermint arrest the growth in the ratios of one to one hundred and sixty-seven thousand, to eighty thousand, to seventy-five thousand, and to thirty-three thousand, respectively.

Richet's experiments showed that the quantity of an antiseptic needed to arrest the growth of bacteria in sea-water was twenty times as great as that which sufficed to kill fish. The benefit derived from the use of silver nitrate, arsenical pastes, etc., in foul ulcers, is probably due to their antiseptic power. In cases of paraplegia with foul bladder the washing out of this viscus with solution of quinine or boric acid has doubtless added years to the life of many a chronic invalid. In foul conditions of the stomach the mild domestic antiseptics, dill-water, ginger, peppermint, are generally efficient. When fermentative changes become chronic, owing to the presence of the yeast-fungus, washing out with Condy's fluid or silver nitrate solution (very deadly to many of the fermentation fungi) is of undoubted value.

The benefit following the administration of mercurial purgatives in foul stomach, etc., of quinin or arsenic in malaria, and of mercury and iodin in syphilis is explained by their antiseptic action.

Good results have followed the free use of raw garlic by persons suffering from foul expectoration, and by children with cadaveric odor of the skin after measles and other acute specifics. In the treatment of tuberculosis antiseptics have been largely used—antiseptic inhalations, creosote and guaiacol carbonate; all without tangible result. In some cases of enteric fever antiseptics may sweeten the evacuations, but the writer has never seen the disease materially modified by their administration.

THE TREATMENT OF WHOOPING-COUGH.

Marfan (*Journ. de Med.*) points out the two leading features in the prognosis of whooping-cough—first, the number of attacks of whooping-cough; secondly, the supervention of broncho-pneumonia; the former giving rise to various hæmorrhages, epistaxis, meningeal, cerebral, and otherwise, as well as various mechanical effects on the lungs, the second causing serious change in the lung tissue and constitutional effects. This complication may be immediately ascertained by the presence of temperature as the spasmodic condition is afebrile. From this it may be gathered that the therapeusis of whooping-cough may be divided into—first, the treatment of the spasmodic condition; secondly, pneumonic. For the first, the writer particularly makes use of three remedies—belladonna, antipyrin and bromoform, the dosage varying with the age of the patient. In the case of belladonna, the quantity should be increased daily, until the severity of the spasmodic attacks is reduced. Unfortunately, it not infrequently happens that the physiological effects of the drug manifest themselves before the cough shows any diminution. This is the great drawback to this drug. Antipyrin is administered with syrup of orange. Like the former, the dose may be increased daily till the maximum is reached. Its effects are often extremely good, but the objection to its use is that should there be any symptom of broncho-pneumonia it must be stopped, as its depressing action may be conducive to dangerous symptoms.

Bromoform, the writer thinks, is likely to replace both of these drugs. As it is soluble only in alcohol and glycerin, its administration is sometimes a little difficult, but Marfan prescribed it with an emulsion of almond oil and mucilage flavored with orange. The child may get up to 3 drops if about 6 months old; 8 drops when 2 years old; and when over 5 years of age from 20 to 30 drops. The first symptom of intolerance is drowsiness, and, as this requires large doses, it follows that the drug is not dangerous when used with ordinary precaution. One important point is that during the first stage of its administration the attacks of whooping-cough may be slightly more marked, after which they subside. Another point worthy of note is that bromoform has no injurious action on the broncho-pneumonia. It is difficult to know if this drug has any power to shorten the duration of the disease, and the writer, from his observations, is inclined to think that it does so.

As to the broncho-pneumonia, Marfan states that it is much more liable when there is rhinitis or lesion of the buccal mucous membrane, and that it is important that all cases complicated by broncho-pneumonia should be separatetd from others. The treatment is the same as in any other case, but the anti-spasmodic treatment should be continued, for the author denies, that as stated by some, broncho-pneumonia arising in the course of whooping-cough, has any beneficial effect on the disease. As to the management of the case, Marfan has come round to the opinion that cases of whooping-cough should not be allowed out, as they do better, especially in towns, by remaining absolutely indoors, but it is advantageous to change the case into a different room for the night. Sc soon as the whooping character of the cough has disappeared, the author recommends change of air, especially to the seaside, as the patient usually has some cough which may last for a considerable time. The duration of the contagiousness extends over the whole period of spasmodic cough, though some consider that it is only the invasion period that is dangerous.

SURGICAL TREATMENT OF INTESTINAL TUBERCULOSIS.

Margarucci (*Il Policlinico*, No. 4, 6, 8, 10, 1898) states that the parts of the intestinal canal most frequently affected are in their order of frequency the last part of the ileum, the cæcum, and the first part of the ascending colon. Bacilli may reach the intestine not only in the food, but through the blood. In the first method of entrance multiple ulcerating foci result, in the second an exuberant production of inflammatory tissue about tuberculous granulations in a limited part of the intestine. Women of middle age are most often affected. The pain may be diffused or localized, continuous or spasmodic; nausea and vomiting are frequent. Tumefaction in the painful part, which easily changes in volume, may be detected. The painful spasm is followed by diarrhœa. These symptoms are more common where there is some stenosis either from cicatrization of old ulcers or from tuberculous neo-formations.

The best treatment is resection of the affected parts. The author refers to 7 cases which were operated upon. The mortality was 42.8 per cent., with 4 cures. Details as to the operative technique are given, and a record of 8 cases of intestinal tuberculosis illustrating various points in the disease.—Panteleoni (*Archiv. Prov., de Chirurgie*, June, 1898) reports a case of tuberculous stenosis of the small intestine in a woman, aged 33 years, in which he removed with complete success about 5 inches of the affected gut, the walls of which were much thickened and of cartilaginous hardness. The divided segments of intestine were brought together by three rows of sutures. The operation was a long and complicated one, as it was found necessary not only to remove a portion of the mesentery, but also, as firm adhesions had taken place between the affected loop of intetstine and the posterior surface of the bladder, to resect at the seat of this adhesion the serous and muscular layer of the vesical wall. In this case there was no restriction with regard to feeding.

In the course of the after-treatment some tea was swallowed about three hours after the operation, and after the first 24 hours the patient was allowed to take what she fancied. The author holds that if the two ends of the divided intestine be carefully and properly united by sutures, and if the operation prove to be an aseptic one, no risk should attend the passage of food already reduced by the digestive processes to a thin and absorbable pulp. The paper contains a careful study of the clinical characters and diagnostic signs of intestinal tuberculosis, and a review of 12 previously recorded cases in which this morbid condition was treated by enterectomy.

THE USE OF THE CATHETER IN CASES OF PROSTATIC DISEASE.

Bangs (*Med. News*, February 12, 1898), in a paper on catheter life, with some remarks on the etiology of hypertrophy of the prostate gland, lays down some general directions on catheterism which should, it is held, be rigidly followed by the patient. The soft catheter with solid tip is the best to use if possible. If a rigid one be required, one made of elastic webbing, with a curve or bend at the point, is preferable. A new catheter must be treated with the same care as to cleanliness and asepsis as one that has been in use.

If possible, it should be exposed to the vapor of formaldehyde; if not, it should be immersed in a solution of formalin (1 to 2 per cent.) during at least fifteen minutes. Then it should be placed in a strip of bichloride gauze, or placed between the folds of a perfectly clean towel. Each catheter should be kept in a separate receptacle or closed drawer, where dust cannot find access to it, and where it cannot be handled except by the person who is to use it.

If the patient must carry the instrument about with him, it should be kept wrapped in several layers of bichloride gauze, and outside this should be placed a wrapping of "waxed" or parchment paper, held firmly by rubber bands. Just before using the catheter the patient must thoroughly clean his hands, and rinse his fingers in pure alcohol. In the meantime the catheter should be lying in formalin solution. Then, after shaking it, and wiping off any drops that may remain upon it with a piece of clean gauze, and smearing it with a proper lubricant, the patient should gently pass it along the urethra. Immediately after use the catheter should be thoroughly washed with soap and water, be steeped for a time in the solution of formalin, and then carefully put away in gauze or clean towel in readiness for the next use.

GUAIACOL IN EPIDIDYMITIS.

Lenz (*Wien. Klin. Rundschau*, Nos. 4, 5, 6, 1898) gives his results from the use of guaiacol in 52 cases of epididymitis, 50 of which were of gonorrhœal origin. He uses a 10 per cent. ointment made with vaseline, or a 5 per cent. if the skin of the scrotum is tender. The scrotum is first washed with soap and with ether. This ointment is applied during the acute stage, and the author claims that in from three to five days the fever, pain and swelling disappear. In subacute stages the action of guaiacol is less active and very slight in chronic cases. After the acute stage it is best replaced by a 1 or 2 per cent. ointment of extract of belladonna, with equal parts of simple ointment and unguentum diachyli. Salol internally, 15 grains *ter die*, is a useful adjunct to the treatment. The quick absorption of the guaiacol is shown by its appearance in the urine in 15 to 30 minutes, as shown by the reaction with perchloride of iron, while its quick elimination is proved by the fact that none is present in the urine after twenty-four hours.

THERAPEUTIC HINTS.

A Method of Resuscitation in Apparent Death from Anæsthetics.—Herzog (*Deut. Zeit. f. Chirurgie*, vol. xlvii, pp. 5 and 6, 1898) gives the results of some experiments he has undertaken on animals with a view of testing the efficacy of Laborde's method of "rhythmical traction of the tongue" in cases of apparent death from drowning and anæsthetics. Laborde described his method at the Medical Academy in Paris in 1892. His attention was first directed to the question by observing the good results which he obtained in the laboratory on narcotized animals, by rhythmical traction of the tongue. In 8 cases of drowning, where the animal was kept under water for three and a-half minutes, resuscitation took place in 5 cases. In Sylvestor's method animals cannot be revived after one and a-half minutes' submersion. The directions for the use of Laborde's method are as follows: Place a piece of linen round the tip of the tongue, and grasp it with the thumb and middle finger; now pull the tongue forward with a jerk, and then relax it again; repeat this manœuver twenty times a minute. A sense of resistance is felt in the tongue before there is any attempt at respiration. Traction should be continued for thirty or sixty minutes. Herzog experimented on dogs; he administered chloroform till the respiration had ceased for one and a-half minutes. He found that Laborde's method was useless in cases of asphyxia in a late stage of narcosis. In an early stage of narcosis, however, Laborde's method is distinctly useful when associated with other forms of resuscitation. Traction on the tonue is said to stimulate the centers in the medulla; this necessitates an increased blood supply to the part. The respiratory center is in close proximity to the centers concerned in the movements of the tonue; the beneficial effect would therefore act on both.

Treatment of Tinea Tonsurans.—Herman B. Sheffield (*New York Medical Journal*, May 14) about a year and a half ago described in the *American Medico-Surgical Bulletin*, September 5, 1896, a method of treatment which cured every case of ringworm of the scalp under his care in from three to six weeks. He succeeded in eradicating an epidemic of tinea tonsurans consisting of 379 cases at the Hebrew Sheltering Guardian Society Orphan Asylum. Later more than eighty new cases came under the writer's care, and every one of them yielded promptly to the same treatment. The same success was obtained by Dr. Spalding, visiting physician to the Juvenile Asylum of New York, who cured over forty stubborn cases within three weeks. Dr. Moreau Morris, inspector of the New York Board of Health, has also witnessed successful results from this method of treatment in various institutions of New York. The following is the formulæ of the remedy: ℞: Acidi carbol., olei., petrolei, aa 65; tinct. iodini, olei ricini, aa 110; olei rusci (German), q.s. ad. 500. After clipping the hair close to the scalp this mixture is applied over the entire scalp—more thickly over the affected spots—by means of a painter's brush, once a day for five successive days. On the sixth day it is wiped off with a rag dipped in plain olive oil; now the hair is clipped again and the scalp washed thoroughly but gently with green soap and a soft nail brush, care being taken that all the scales and loose hair covering the scalp are removed. No epilation is, as a rule, necessary. On the seventh day the mixture is reapplied as thickly as before, and the whole process is repeated regularly for three or four successive weeks, the length of time depending upon the severity of the case, when it is found that new hair begins to appear and that no trichophyton fungi can be discovered in the hair epilated for microscopical examination. These procedures are followed by a few days' application of a ten-per-cent. sulphur ointment, and then by the use of the following preparation for about two weeks:—℞: Resorcini, acidi, salicyl., aa 16; aletholis, 120; olei ricini q.s. ad. 500. This mixture considerably hastens the growth of the hair on the bald spots. In cases where isolation is impracticable or impossible, as often happens in private families, this resorcin mixture serves as an excellent substitute.

Holocaine as a Local Anæsthetic in Ophthalmology.—Zunz (*Journ. Med. de Bruxelles*, May 19) considers that holocaine is preferable as a local anæsthetic to cocaine or eucaine. It closely resembles phenacetin. It is a powerful base, insoluble in cold water, but easily soluble in alcohol and ether. A saturated solution of the hydrochlorate contains 2.5 per cent. of the salt, which is the one to be employed. It is itself an antiseptic and therefore does not need sterilization, although it it does not undergo decomposition on boiling. A 0.1 per cent. solution causes complete anæsthesia in the rabbit after twenty seconds, which lasts from twelve to fifteen minutes, and is due to a direct paralysis of the terminations of the sensory nerves. It is more toxic than cocaine, and resembles strychnine in its toxic effect. Death is due to stoppage of respiration from spasm of the respiratory muscles. It has no effect on the pupil, or on accommodation, or on the vessels. The anæsthesia is more prompt and not less profound than that due to cocaine. Its instillation is always accompanied by a slight sensation of burning, but this quickly ceases, and is not more unpleasant than that produced by cocaine. Complete analgesia in man occurs 40 or 50 seconds after the instillation of one or two drops of a one-per-cent. solution, and if the dose is repeated after an interval of forty seconds, absolute corneal anæsthesia supervenes half a minute later. Coincidentally with the burning sensation there occurs slight redness of the conjunctiva, but the burning ceases at the end of thirty or forty seconds, and the redness disappears at the end of two minutes. With a 0.5-per-cent. solution the anæsthesia lasts five to eight minutes; with a 1.0-per-cent. solution it lasts ten minutes, and the analgesia persists for five minutes after the return of tactile sensibility. If the anterior chamber of the eye is opened it acts as quickly on the iris and ciliary body as on the cornea. Unlike cocaine, it does not affect the intraocular tension or cause exfoliation of the corneal epithelium or produce effects due to stimulation of the sympathetic nerve terminations, such as widening of the ocular aperture, pallor of the conjunctiva, or proptosis. It thus acts as well and more rapidly and with smaller doses than cocaine, without its inconvenient effects, and, unlike eucaine, it does not cause any congestion of the tissues to which it is applied. Its one defect is its toxicity, but, up to the present time there has not been a single case of poisoning recorded consequent on its use in ophthalmology.

TREATMENT OF FRACTURED PATELLA.—Ball (*Practitioner*, May, 1898) describes a method of radical operation for transverse fracture of the patella, which may be used in recent cases or in cases which have failed under ordinary treatment. He exposes the joint by a horse-shoe flap and cleans out all blood clot. The edges of the fragments are trimmed and a periosteal flap raised from each. A wire rope consisting of eight strands of steel wire is used, and annealed just before being used. This is passed in two separate pieces, the upper piece passing through the quadriceps tendon, and down each side through the tendinous expansion to the level of the fracture. The lower piece is passed through the ligamentum patellæ, etc., in the same way. The two wires are then tightened and twisted together at the sides, and their ends hammered flat. The periosteal flaps are united by catgut. The author thinks this method as safe as any subcutaneous wiring, while it has the advantage of exposing the parts to view and cleaning the joint thoroughly. He recommends it in all cases where the surgeon is sure of his antiseptic precautions. He quotes a case of six months' duration, previously treated only by rest in bed, where the fragments were separated four inches. After treatment in the way described, the wound healed in a week; passive motion was begun in two weeks, and the patient walked in a month. A subsequent skiagraph showed the fragments united and the wire rope *in sutu*. No harm apparently results from the presence of the wire rope in the tissues.

A NEW METHOD TO RESTORE AN ASPHYXIATED CHILD.—Stringer (*Vir. Med. Semimonthly*, May 13, 1898) calls attention to the fact that the asphyxiation of an infant after a difficult labor, being due to a lack of oxygen, may be overcome if the blood is kept oxygenerated, until the sensitiveness of the child is sufficiently restored to permit normal breathing to begin. He discovered quite by accident that this oxygenation may go on through the surface of the placenta if the latter is exposed to the air. Having had a miscarriage case at the fifth month, in which the fœtus, the membranes, and the placenta all came away together, he wrapped up the specimen with the intention of examining it the following morning. Great was his surprise to find several hours later that there was still a pulsation of the heart. Life had evidently been prolonged by the aeration of the blood, which took place through the placenta. Stringer has since had occasion to test this method in the case of several full-term children born asphyxiated, and has found it to work admirably. As such cases usually follow long and difficult labors, the placenta is already separated in whole or in part, so that its removal does not present any difficulty. It is to be removed as soon as possible, its surface washed and exposed to the air, when the child will live an indefinite time, as it did in the uterus, without respiration. When respiration begins, which was not for twenty-five minutes in some of the cases, pulsation in the cord will cease, and it may be tied and cut.

TREATMENT OF ENLARGED SPLEEN BY ETHER SPRAY.—Moscucci (*Rif. Med.*, April 23, 1898), at the suggestion of Professor Raimond, has tried the effect of ether spray applied to the left half of the abdomen in cases of enlarged spleen. In the twelve cases briefly reported by the author very marked reduction in the volume of the enlarged spleen was observed after treatment. From 25 to 30 g. of ether were sprayed over the splenic area, through a Richardson's atomizer, once a day. Measurements of the spleen before and after treatment are given in each case. With the reduction in size, the patient's general condition improved. No bad results are recorded. As a rule, the right side of the abdomen was covered with cotton wool and only the affected splenic area played upon.

SYPHILIS OF THE UTERUS.—Legrain (*Ann. des Mal. des Org. Genito-Urin.*, April, 1898) reports on three cases of syphilitic disease of the uterus. In all three cases the uterus was uniformly enlarged, but not fixed; the cervix was not ulcerated or eroded. In two cases there was metrorrhagia and anæmia, and in the third purulent endometritis. Two of the patients had other syphilitic manifestations. Under specific treatment all recovered, the uterus resuming its normal size. The author considers these cases to be parenchymatous and fungous metritis caused by diffuse cell infiltration of the uterus rather than gummata. He thinks syphilis of the uterus more common than is generally supposed, and that some cases diagnosed as fibroids are really syphilitic.

DEATH FROM SANTONIN.—Death as the result of an overdose of santonin is a rare, possibly an unprecedented, occurrence, yet, according to the *Medical Press and Circular*, an inquest was rendered necessary a few days ago at Reading, England, on the body of a woman who had taken about two drachms of santonin for supposed worms, at the instance of an incautious friend. She became delirious and had "fits," which continued until she died. An autopsy revealed the fact that she was not suffering from worms, her abdominal symptoms being caused by an internal neoplasm.

BOOK REVIEWS.

A Manual of Modern Surgery, General and Operative, by John Chalmers Da Costa, M.D., Clinical Professor of Surgery, Jefferson Medical College, Philadelphia; Surgeon to the Philadelphia Hospital, etc., with 386 Illustrations. Philadelphia: W. B. Saunders, 1898. pp. 911. Cloth, $4.00 net.

In this work the author has attempted to present the chief operations and the accepted methods of modern surgery in a terse, direct manner, so as to produce a book which will stand between the complete but cumbrous text book and the incomplete but concentrated compend. The demand for a second edition within a little over three years from the appearance of the first indicates that there exists a demand for such a work and that this work has satisfactorily filled it. The end sought by the author has been attained by condensing to the lowest practicable limits that portion of the work devoted to generalizations, by selecting and presenting accepted methods without presentation or discussion of those of dubious value, by avoiding any irrelevant theoretical discussions, and by omitting such departments as ophthalmology, gynecology, rhinology, otology and laryngology, on the ground that in the present advanced stage of specialized science only the specialist is competent to write upon these branches.

In orthopædic surgery those conditions are discussed which must usually be cared for by the general practitioner; this includes such common cases as hip-joint disease, club-foot, Potts' disease of the spine, flat-foot, etc.

In its second edition the volume has been changed in many details, while the general plan and scope of the first edition have been closely adhered to. Among the numerous additions we note particularly interesting sections on the use of Röntgen rays, on bacteriology, and on the effects of the modern rifle bullet.

In view of the very considerable opportunities which have been recently afforded for a study of the action of the modern, small, steel-jacketed, high-power bullet of the campaign, it is of more than passing interest to note how closely the reports from the field follow the conclusions already arrived at by theoretical study. Our experience with Mauser wounds bears out in very large measure the statements made by Dr. Da Costa as to what might be expected, save that the small bullet is more humane than he thought. Singularly enough, however, the "explosive" lacerating effects of the small bullets, which reduce the tissues to pulp and comminute the bones, were noted, but these effects occur only at very short or very long ranges, and most of our men were wounded within the ranges five hundred to fifteen hundred yards, in which the small-caliber bullet passed through the body and in some cases the head, leaving a clean-cut wound with but slight laceration at point of exit, from which rapid recovery followed.

The volume is clear, concise, well written, and while most of the illustrations are devoid of artistic excellence, they are what is more important—comprehensible.

CONSERVATIVE GYNECOLOGY AND ELECTRO-THERAPEUTICS, A Practical Treatise on the Diseases of Women, and their Treatment by Electricity, by G. Betton Massey, M.D., Physician to the Gynæcologic Department of Howard Hospital, etc., etc. Third Edition, Revised, Rewritten and Greatly Enlarged. Illustrated. Philadelphia, New York, Chicago: The F. A. Davis Co., 1898. pp. xvi—394. Extra Cloth, $3.50 net.

The cordial reception given to the first and second editions of Dr. Massey's work proved that not only was there a field for it, but that the volume covered that field to a certain extent satisfactorily. The rapid advance in electro-therapeutics, however, has necessitated considerable revision, and in preparing the material for the third edition the author found it advisable to enlarge its scope very matrially, as is indicated by the title. The work does not claim to be a treatise on abdominal and pelvic surgery, but it does cover ground of equal or greater value to the average physician, as its contents are essentially practical in character.

The illustrations are particularly good, many being not wholly devoid of artistic merit.

ATLAS OF SYPHILIS AND THE VENEREAL DISEASES, Including a Brief Treatise on the Pathology and Treatment, by Prof. Dr. Franz Mracek, of Vienna. Authorized Translation from the German. Edited by L. Bolton Bangs, M.D., Consulting Surgeon to St. Luke's Hospital and the City Hospital, New York, etc., etc. With 71 Colored Plates. Philadelphia: W. B. Saunders, 1898. $3.50 net.

The volume before us is one of the series of "Lohmann Medicinische Handatlanten" which is now being placed at the disposal of the English reader. As has already been stated, in reviewing an earlier number of this series, the "Atlas of Internal Medicine and Clinical Diagnosis" (see GAILLARD'S for June, page 385), "The great advantage of natural pictorial representation is indisputable. For lasting and practical knowledge, one accurate illustration is better than several pages of dry description. While appreciating the value of such colored plates, the profession has heretofore been practically debarred from from purchasing similar works because of their extremely high price, made necessary by the limited sale and the enormous expense of production. The Lehmann atlases, however, are published at a very low price, and the English edition will also be published at a very low price, one which will place them within the reach of every practitioner and student."

Probably the best indication of the scope and variety of the illustrations is furnished by a list of them, which reads as follows:

Sclerosis in the coronary sulcus of the penis; sclerosis in the pubic region; sclerosis on the anterior surface of the scrotum; sclerosis on the right labium; ambustiform sclerosis and indurative œdema of the left labium; ulcertive sclerosis in the vaginal portion of the cervix; two ulcerative scleroses on the os uteri; sclerosis on the lower lip; sclerosis at the right angle of the mouth; sclerosis of the tongue; sclerosis of the right tonsil; indurative syphilitic œdema; recent macular eruption (roseola) over the entire surface of the body; large macules mixed with papules, scattered over the entire body (Dorsal view); erythema figuratum; erythema figuratum (erythème circinèe-Fournier); syphilitic pauples distributed over the entire body; papulopustular syphilide-jaundice; small aggregated papules (lichenoid syphilide, relapsing form); papulos quamous syphilide; papular orbicular syphilide; irregularly distributed papular syphilide; leukoplasia of the neck; papules on the genitalia (front view); flat, glistening papules on the forehead and face; syphilitic alopecia areolaris; papules on the hairy scalp; small pustules on the face; pustular syphilide; proliferating pustular ulcers (frambesia or yaws) on both calves; psoriasis syphilitica plantaris; eroded papules between the toes; papules and fissures between the toes; syphilitic paronychia of both hands; proliferating eroded papules of diphtheritic character; proliferating papules; proliferating papules on the labia majora, in the genito-crural fold, and on the perineum as far as the anus; proliferating papules on the labia majora on the perineum and about the anus; hypertrophic papules and folds about the anus; old annular papules that have begun to heal in the center; diphtheritic papules on the mucous membrane of the os uteri and vagina; diphtheritic papules on the mucous membrane of the upper lip and left side of the mouth; infiltration and superficial necrosis of the mucosa and submucosa of the upper lip; ulcerating papules and incipient leukoplasia of the tongue; elevated, coalescent papules on the hard palate; leukoplasia (psoriasis) linguæ; condylomatous iritis; gummatous tarsitis of the left eye, trachoma; syphilitic frambesia (yaws); syphilis præcox; gummatous ulcers on the labia majora, the posterior commissure, the right labium, minus and the vagina; gummatous ulcer of the left nipple; gumma of the breast; syphilitic rupia; serpiginous, gummy ulcers; serpiginous, gummy ulcers of the right calf; cutaneous gumma on the dorsum of the foot; gumma of the pharynx; ulcerative gummata of the pericranium; gumma in the glands of the neck, with destruction of the integument; gummatous ulcers of the skin and inguinal glands; gummatous disease and necrosis of the soft parts; destruction of the soft palate by gummatous ulceration; gumma on the posterior wall of the pharynx; gummatous glossitis; papulopustular exanthema, hereditary syphilis; papulovesicopustular exanthema, hereditary syphilis; hereditary syphilis; venereal ulcers on the foreskin and on the head of the penis; contagious, coalescent venereal ulcers on the skin of the penis; adenitis of the right inguinal glands; paraphimosis from venereal ulcer on the foreskin, inflammatory œdema; suppurative adenitis in both groins; suppurative lymphangitis of the dorsum penis (bubonulus Nisbethi), with necrosis of the integument; abscess of the left gland of Bartholin; gonorrhœa, cavernitis; condylomata acuminata; condylomata acuminata on the coronary sulcus and on the inner layer of the foreskin, which is inflamed and necrotic along the left border; condylomata acuminata at the os uteri; subcutaneous hæmorrhage into the skin of the penis; molluscum contagiosum (moniliforme [bread-like]).

FAVORITE PRESCRIPTIONS.

Prophylactic Gargle in Scarlatina.

The frequency of otitis media as a complication of scarlatina is said (*Med. News*) to be reduced to a minimum if several times a day the tonsils and pharyngeal vault be gently brushed with absorbent cotton, wet with the following solution:

Beta-naphthol	ʒ i
Camphoræ Glycerini } aa	ʒ iv

Treatment of Ecthyma.

Brocq (*Med. News*) recommends the complete removal of the crusts by means of warm wet compresses or oils and the subsequent daily application to each ulcerous base of a 2 per cent. solution of silver nitrate or a 1 per cent solution of chloral hydrate. Tincture of iodine is also of value, followed by the use of the following powder:

Iodoformi	ʒ ss
Bismuthi salicyl	ʒ v

Regulation of the diet, hot salt baths, fresh air and tonics are generally indicated.

Treatment of Painful Dentition.

1. Frequent hot irrigation of the mouth with a solution of the following:

Chloralis hydratis	grs. xlviii
Aq. menth. pip	℥ i

M. Sig. One teaspoonful to three ounces of hot water for irrigation.

2. Gentle friction of the gums with the following mixture:

Chloroformi	*m.* vii
Creosoti pur	*m.* iii
Vini opii	*m.* ii
Tinct. benzoini	ʒ iii.

M. Sig. External use.

Local Application for Hæmorrhoids.

Dr. Fruitnight recommends the old nut-gall ointment combined with extract of belladonna and opium as a local application, together with the use of Van Buren's old prescription

Lac sulphur Potassæ bitarat. } aa	℥ ii
Pulv. buisi	ʒ ii

to keep the bowels open, will generally relieve mild cases.

In regard to the skin-tab, or itching pile, when the patient will not consent to removal, he has employed with good results applications of a 20 per cent. white precipitate (murcurial) ointment. Strict attention should be paid to the diet, and the habits of life should be regulated.

Dr. Erdmann holds that "if we can treat the cause we will cure hemorrhoidal conditions without operation. There is no doubt that these affections are often due to obstruction of the portal circulation. As to local applications, Goulard's extract and cherry laurel water applied on a cloth at night will often relieve the pruritus."

GAILLARD'S MEDICAL JOURNAL.

A MONTHLY JOURNAL OF MEDICINE AND SURGERY

Scientia et Veritas Sine Timore.

Published by the New York Medical Publishing Co.,
106 William Street, NEW YORK.

All communications, of either business or editorial character, should be addressed to Gaillard's Medical Journal, 106 William St., New York.

Articles for publication will be received with the understanding that they are contributed exclusively to this journal. Reprints will be furnished at actual cost, orders for which should accompany the manuscript. Authors of accepted articles may receive twelve copies of the issue in which they are published. Necessary illustrations will be furnished without expense to authors when suitable drawings or photographs are furnished.

THE MEDICAL LESSONS OF THE WAR.

WHILE it is impossible at this early date to draw any final conclusions covering all the various fields of medical practice which have been enriched by the experiences of the war with Spain, some of the lessons taught by this experience even now loom large in the public eye.

The first of these is the inadequacy of the medical attendance attached to the regular troops, so far as number is concerned. Notwithstanding the passage of the Hull Bill, reorganizing the regular army, the force of regulars sent to Cuba under Shafter carried with them only one surgeon for each regiment and one divisional hospital corps, instead of the three to which an army corps is entitled. One consequence of this was that the first telegram sent by Shafter to Washington after the second day's fighting was an urgent demand for additional medical attendance and hospital supplies. Another lesson learned was that the commanding officer should not push his troops forward more rapidly than he can forward his hospital train, except in cases of the greatest urgency. Although no urgency of this character existed at Santiago, General Shafter pushed his troops rapidly to the front after landing and made no provisions whatever for unloading even such hospital supplies as he had on his transports, and he was therefore compelled to fall back upon Red Cross supplies instead of being able to utilize his own.

Another lesson learned is the necessity of utilizing immune surgeons and nurses where they are obtainable, even at the expense of the dignity and official standing of the surgeons in the regular army.

A fourth lesson is the folly of attempting to acclimate troops by a few months' residence in a semi-tropical country.

The latter two lessons have not been learned by the authorities, though they are sufficiently plain to the medical observer free from the caste prejudice which so envelops officialdom. If, instead of concentrating the troops at Tampa, Chickamauga and Camp Alger, where they are subjected to almost semi-tropical conditions, they had been in camp at some point on the coast in the vicinity of New York or Boston, the troops would have been maintained in a degree of robustness which would have enabled them to withstand a sojourn of a month or so in Cuba without any serious detriment to their health. The English, who have had probably larger experience in tropical warfare than almost any other nation, make it a rule to keep their soldiers in the hills up to the last possible moment, and while the troops are still fresh and invigorated from the cool and salubrious climate of the hill country, they are rushed into the campaign in the South, pushed vigorously through it and returned to the hills at the earliest possible moment.

Our own officials at Santiago have foolishly talked of keeping the men there who have passed through the malarial fever, with the idea that they had become immune, whereas in fact they have merely become debilitated and are much more liable to further attacks than fresh troops would be. With some eighteen thousand troops in the province and with a list of six hundred new cases of fever per day, it can readily be seen that within a very short space of time all of our troops now in Santiago will have passed through the malarial fever. The rigid press censorship prevailing renders it impossible to learn what proportion of the fever cases are of yellow fever, though taking the experience of previous yellow fever epidemics as a criterion, it is probable that every one of the soldiers now in Cuba who is not an immune will sooner or later be attacked with yellow fever if he is not removed to a cooler climate. The proper course to pursue is to ship these soldiers at once to some point on our Northern seacoast where they can be completely isolated. It is the height of folly to delay this movement, and every soldier should be moved who is not actually suffering from yellow fever or not so weak as to make it a matter of imminent danger to place him on shipboard.

The arrival of the transports Seneca, Alamo and Concha in this port with sick and wounded soldiers in a condition which is to the everlasting disgrace of our Government and of the authorities responsible for the care of the troops is no argument whatever against the removal of the convalescents and invalids from Cuba. The hardships suffered on these vessels are not necessarily incident to the voyage, but are merely the outcome of gross negligence on the part of the superior officers who ordered the vessels to leave without seeing that they were properly supplied with medical and other stores. By reducing the number of men placed on the vessels so as to give sufficient space for comfort and by exercising care in provisioning and supplying the ships, there can be no question that the sick would begin to improve from the day the ships got under way, and that all the invalids would reach this port in a better condition than they were when they left Cuba. The condition of the men on board the hospital ship Relief and on the Olivette proves the truth of this statement. It would be impossible, of course, to furnish every ship with the conveniences and appliances which are found on the Solace and the Relief, but there is absolutely no excuse whatever for the conditions which caused the arrival of the Seneca, the Alamo and the Concha to send a thrill of horror through the entire community.

It is proposed to garrison the province of Santiago with the ten regiments of immunes enlisted for tropical service. Two of these regiments are already on the way and the others are merely waiting orders to proceed to Cuba at once. With these forces in the province, there will be absolutely no need for the retention of any of the troops now there, whose stamina was broken down by the first few days of extraordinary hardships, including constant fighting and marching without adequate food and shelter, and who, by contact with the refugees, have been exposed to yellow fever contagion. Even if the troops sent down were not immunes, they would be much less apt to attack than the first men landed, since they would land under more favorable auspices and would not be subjected to the hardships which pave the way for the malarial and enteric fevers which are devastating the ranks of the soldiers now on duty.

Dr. Sternberg, the surgeon-general of the army, has been quoted in the *Army and Navy Journal* as stating that he thought that the yellow fever would probably not prove more harmful than are the diseases to which troops are ordinarily subject in higher latitudes. Dr. Sternberg denies the authenticity of this quotation, stating that the conclusions attributed to him are not justified either by his studies or by his personal experience. History teaches that when a considerable number of unprotected persons are exposed in a yellow-fever-infected locality during the months when this disease is most prevalent (May 1 to November 1 in the latitude of Havana) an epidemic almost infallibly results. In the last week of April of last year there were seventeen deaths and seventy new cases of yellow fever in the city of Havana. Now, suppose that we had a similar number of cases at the same season in New Orleans, and that twenty thousand strangers from the North should go there to spend the summer, what would be the result? All past experience supports the belief that a majority of them would have yellow fever, and that from twenty to forty per cent. of those taken sick would die. "This," says Dr. Sternberg, "is what I anticipate would happen if we should send an army to occupy Havana or any other infected seaport on the coast of Cuba during the summer months. If, however, these troops could be camped upon high land in the interior, and circumstancse were such as to enable them to comply with all of the exactions of modern sanitary science, I am of the opinion that our loss from yellow fever would not be serious. But in time of war military commanders are expected to take their troops to the points occupied by the enemy, and a picnic in the interior with frequent changes of camp, etc., is perhaps not exactly what we may expect."

As pointed out in the admirable article on yellow fever by Prof. J. Edward Stubbert, which is printed on another page, the medical department must be made supreme if the fever is to be controlled. Red tape must be abolished and the power placed directly in the hands of those medical officers who are responsible for the welfare of the troops.

The only safety for the troops who have not yet had the yellow fever lies in their immediate transportation to the North, for every day's delay increases very greatly the difficulties of carrying out this movement and decreases the number left whom it may benefit.

* * *

While the effects of the wounds from high-power bullets during the campaign in Cuba have been studied with absorbing interest, it has been almost a matter of surprise to find how little we had to learn in this direction, for the observations made have throughout confirmed the results of study and of theoretical conclusions. The wounds have healed with a surprising degree of rapidity. The value of aseptic dressings applied immediately upon the receipt of the wound has been demonstrated beyond all question. The surgeons have done as little as possible to the wounds and have made every effort to exclude contaminations on the outside, leaving nature to do its own repairing. Aseptic dressings applied on the field have with advantage been left until the tenth day after the wound, when the wound is found to be completely cured. In fact, it has been difficult to impress upon the patients in some cases the necessity of leaving the wound alone, and patients have complained of lack of attention because their wounds were not dressed daily, as under the old regime, when "laudable pus" was looked upon as a necessary concomitant of every surgical operation.

GAILLARD'S MEDICAL JOURNAL.

VOL. LXIX. NEW YORK, SEPTEMBER, 1898. No. 3.

SOME ABDOMINAL CASES.[1]

BY GEORGE BEN JOHNSTON, M.D., Richmond, Va.
Professor of Gynecology and Abdominal Surgery, Medical College of Virginia.

It is a source of regret to me that I have not for the past ten or fifteen years kept the pathologic specimens that have come from the various operations I have performed, because great benefit may be derived later on from a correct study of these specimens. With this in view, for the last few months I have kept all specimens worth preserving, concerning a few of which I speak to you to-night, giving a brief history of the cases from which they were obtained.

Carcinoma of the Cervix with Pregnancy.

CASE I.—The first specimen I wish to show was taken from Mrs. R. D. B., aged twenty-four years, referred to me by Dr. J. P. Haller, Pocahontas, Va. Admitted to the Old Dominion Hospital January 17, 1898. Previous history uneventful save an attack of typhoid fever six years ago. Married six years; one child five years of age; no miscarriages. For two years has suffered with leucorrhœa and very painful menstruation. Periods have not appeared for five months.

An examination of this case, made on the 18th day of January, revealed a large globular tumor in the lower part of the abdomen, some enlargement and swelling of the breasts, discoloration of the nipples, and fluid in the breasts. On minuter examination, fœtal movements could be feebly discerned. A digital examination by the vagina revealed a large and eroded cervix, and inspection discovered a large ulcer upon the cervix which turned out to be a carcinoma.

This condition confronted us: Here is a woman only twenty-four years of age presenting a carcinoma of the cervix, complicated by pregnancy advanced to the fifth month. Complete hysterectomy was the only course for her relief. I thought it a pity to sacrifice the child, and therefore determined to keep her under observation to discover whether or not the disease was making rapid strides. It was ascertained that the spread was slow. I therefore determined it would be justifiable, so far as the woman was concerned, to defer any operative interference until the child was at least viable. I recommended a return to the hospital after the termination of the seventh month of pregnancy.

She was readmitted to the hospital on the 13th day of March and was operated upon on the 22d. The operation was the Porro, and the anæsthetic used was chloroform. All of the ordinary preparations of the patient were made. The first step in the operation was the complete destruction of the cancerous tissue of the cervix by means of the galvano-cautery. A long, free incision was made in the abdominal wall, and quickly carried down to the uterus, which was exposed and delivered through the wound. Two loops of a large elastic ligature were thrown around the cervix but not tightened. An assistant grasped the cervix firmly with the hand to control bleeding. The uterus itself was then incised by a free and rapid incision and immediately the child was delivered, cord clamped and the child turned over to the accoucher. The ligature around the cervix was at once tightened and clamped, and when this was completed a large pad of gauze was put into the uterus and two stitches of pedicle silk were made to close the uterine incision. No attempt was made to dislodge the placenta, and a gauze sponge was placed in for the purpose of absorbing any oozing that might occur, thus diminishing the risk of contaminating the peritonæal cavity. In the meantime, the intestines had been protected by large sheets of gauze. From this point on the operation was one of simple hysterectomy. The ovarian vessels were ligated, divided between the ligatures and then the

---

[1] Read before the Richmond Academy of Medicine and Surgery. June 12, 1898.

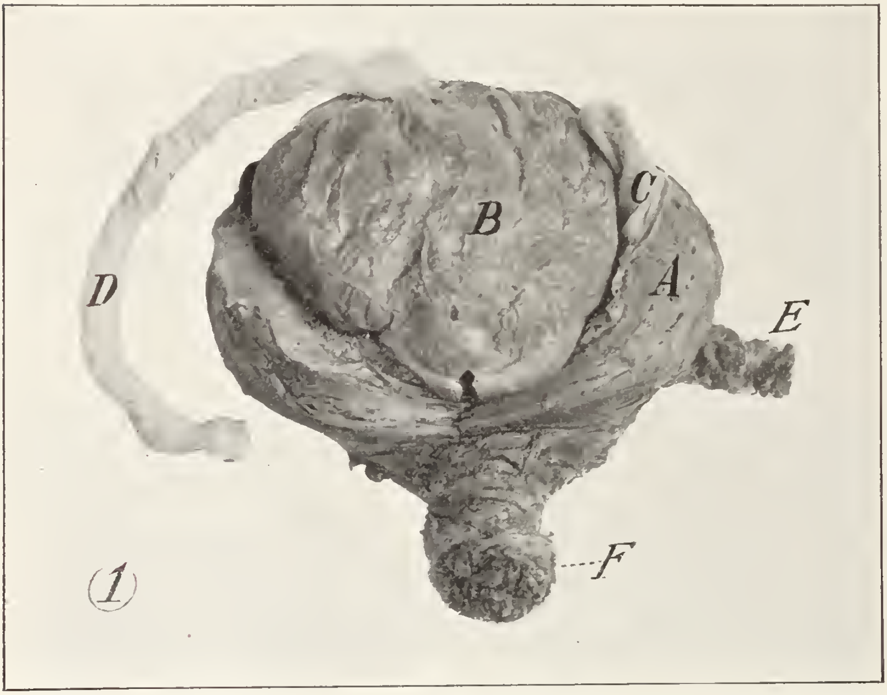


Fig. 1. Uterus and placenta from Case I. *A* Incised wall of uterus; *B* Placenta *in situ*; *C* Fœtal membranes; *D* Umbilical cord; *E* Left ovary and tube; *F* Cancerous cervix.

uterine arteries were secured, the vagina opened from above, the cervix dissected out, as was also the upper portion of the vagina. As soon as this was accomplished the proper toilet of the peritonæum was made and the wound closed by through-and-through silk-worm gut sutures. I have long abandoned the practice of closing the abdominal wound with tiers of sutures, using only through-and-through sutures of silk-worm gut. Vaginal drainage was used.

This woman made a very happy recovery. The child, which was rather poorly nourished, perished at the end of two and a half hours. The second day there appeared in the breasts a considerable flow of milk, which was suppressed by the application of the so-called Murphy jacket.

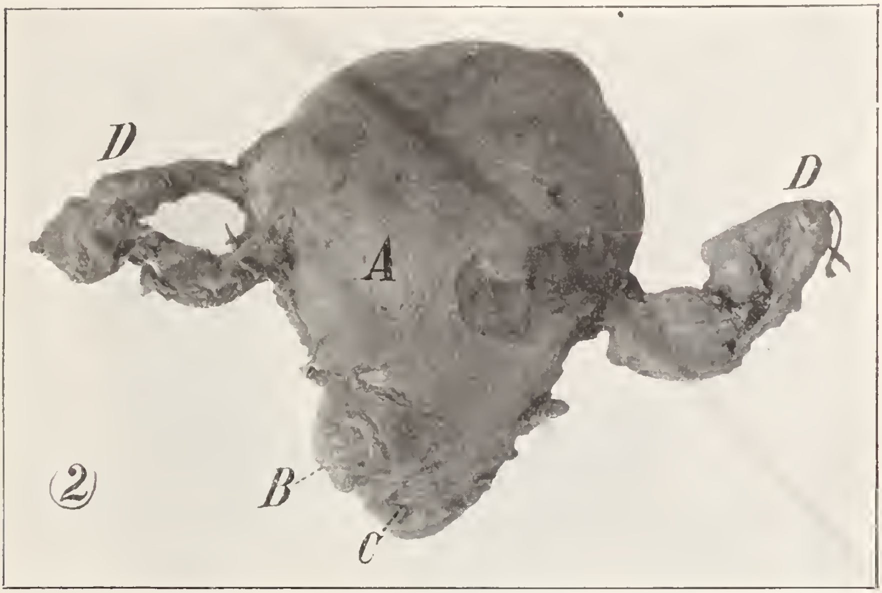


Fig. 2. Uterus and appendages from Case II. *A* Uterus containing myomata; *B* Nodule which has undergone calcareous degeneration; *C* Cancerous cervix; *D D* Uterine appendages.

The specimen from this case (see Fig. 1) shows the uterus with placenta firmly attached, the umbilical cord and portions of the fœtal membranes. I was much struck in this instance, as I have been in others, to see the extent to which very muscular specimens shrink after removal.

Carcinoma and Calcareous Degeneration.

Case II.—The next specimen, a rare one as presenting a very curious combination of pathologic conditions, is from the case of Mrs. A. V. W., referred to me by Dr. H. C. Beckett, Clover, Va. This patient, a white female, aged fifty years, gave the following history: Married at twenty-seven, but never had any children. Menstruated at seventeen, after which courses were regular, but attended with much pain since marriage. Has considerable leucorrhœa and bloody discharge. About eighteen years ago consulted a physician in this city, who told her she had a small fibroid which would disappear at change of life. Not troubled again until June of last year, since which time she has had six attacks, each of increasing severity, of intense pain in abdomen, accompanied by some bloody discharge, and confining her to bed for several days during each attack. Admitted to the Old Dominion Hospital, May 3, 1898.

An examination of this patient revealed the uterus perhaps five times as large as normal, nodular, and somewhat depressed, the cervix being within easy reach of the examining finger, which also revealed an ulcer upon the cervix and the further fact that carcinoma of the cervix was complicated by fibroids of the uterus.

A complete hysterectomy was undertaken and was free from incident. Upon removal of the uterus it was discovered that not only were there fibroids in the structure of this organ, but also a subserous fibroid, situated on the posterior surface of the uterus and about the size of a small walnut, which had undergone calcareous degeneration here shown. (See Fig. 2.) You can hear the sound as it is struck by the nail. It was covered only by peritonæum, with an absence of all other tissue. In the body of the uterus other masses were plainly seen. This patient also made a perfectly satisfactory recovery and has returned home.

Dr. Hall's Operation for Intraligmentous Cysts.

Case III.—One of the most interesting specimens I have to show you (see Fig. 3) is that taken from a negro woman, Maria Prosser, referred to me by Dr. C. M. Miller, of this city. This patient, aged forty-eight years, was married at nineteen, and has had fifteen children, triplets once. Menopause six or seven years ago. No previous illness. Complains of severe pain and enlarged abdomen, which symptoms were first noticed about four years ago. Pain intermittent. Four months ago, had very severe attack of pain and rapid increase of swelling. Had general œdema and some congestion of kidneys, due to pressure. Occasional discharge from vagina, but no hæmorrhage.

When I first saw her, in consultation with Dr. Miller, she was much debilitated, greatly reduced, thoroughly anæmic, abdomen enormously swollen not only from the tumor but also from a collection of ascitic fluid, and œdema of the lower extremities. Examination showed a large, irregular tumor occupying lower portion of the abdomen, extending above the umbilicus, higher on the right than on the left side. The abdominal walls were very thin. Prominently shown above the symphisis was a proturberance half the size of a cocoanut, movable from side to side and plainly attached to the tumor. The neck of the uterus was out of reach of the examining finger. The mass resembled a full bladder displaced by a pelvic tumor, but was pronounced to be the uterus with tumor attached. The diagnosis made was intraligamentous cyst of right side with the uterus lifted out of the pelvis. Deeming it unwise to operate in her present condition, she was put under a preparatory course and then operated upon at the Old Dominon Hospital on May 21.

After the incision was made and the tumor exposed, the accuracy of the diagnosis was verified. Ordinarily this would have been an extremely difficult case and, in all likelihood, radical operative interference would have proved fatal. Goodell says, "These are the patients that die on the table."

We are indebted to Dr. Rufus B. Hall,[2] of Cincinnati, for a recent method of dealing with intraligamentous cysts which renders the operation almost as safe as an ovariotomy. The old method was to split the peritonæum, then proceed to enucleate the cyst. As the blood supply is very large this meant very profound and sometimes fatal hæmorrhage. The operator was embarrassed by the great flow of blood; had to work with the utmost rapidity; his manipulations had to be carried on by the sense of touch and not by sight. Having heard Dr. Hall describe his method at the recent meeting of the Southern Surgical and Gynæcological Association, where he exhibited a specimen very similar to the one before us, I concluded to try his method in this case, and found it to work admirably.

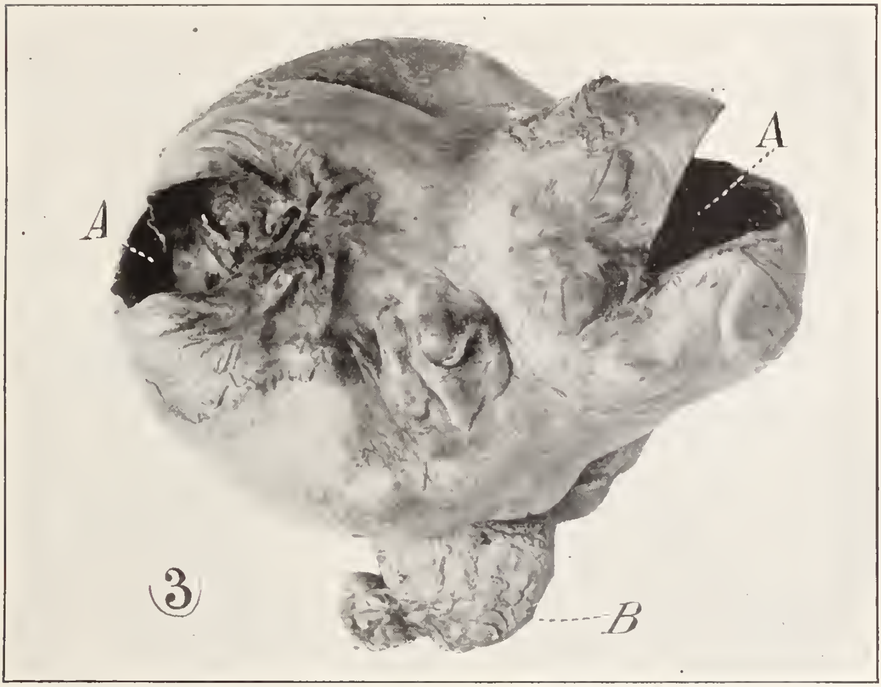


Fig. 3. Uterus and intraligamentous cyst from CASE III. *A A* Two of the three large cystic cavities; *B* Uterus.

I proceeded to do a supra-vaginal hysterectomy and was able to control the blood supply to the tumor. I ligated the ovarian artery on the healthy side with a double ligature, then severed the tissues between the ligatures, went down to the uterine artery on the same side and ligated it, after securing which I returned to the affected side and ligated the ovarian artery. This left no vessel of magnitude, save the uterine artery on the affected side. I then severed the cervix from the good to the affected side until I reached the uterine artery, passed a ligature around this and proceeded to lift the tumor out. Practically no blood was lost.

---

[2] Trans. South. Surg. and Gyn. Assn., Vol. X, p. 184.

After removal, the tumor was discovered to have three very large cavities filled with fluid and accumulated blood. One of these cavities contained a clot very firmly organized; in the others the fluid was thin and left clean walls.

This woman did extremely well for the first three days; then, in the temporary absence of the nurse, got up and sat in a chair. Untoward symptoms developed, and her life was despaired of, but the symptoms subsided and an excellent recovery followed, the patient leaving the hospital at the end of six weeks. This case is of particular interest, as occurring in a negro woman. Tumors of this type in the negro race are even rarer than ovarian tumors, which latter are almost never seen. This specimen may, therefore, be regarded as a surgical curiosity.

Ovarian Abscess, Hydrosalpinx and Other Complications.

Case IV.—The next specimen (see Fig. 4) is that taken from a woman recently admitted to the Old Dominion Hospital, referred to me by Dr. R. W. Fry, of Roanoke, Mrs. M. C. W., aged thirty-five years; married. Previous history: Menstruated at fifteen; regular ever since. Married at eighteen; three children and five miscarriages; last three due to lacerated cervix. Typhoid fever at the age of twenty-five. Says she has suffered with congestion of the womb for ten years, and has been treated for ulceration of the womb. Pain is most severe between periods; is located in lower part of the abdomen, extending down the thighs, especially the right one. Dr. Fry examined patient, and, findng a mass in the pelvis to right of uterus, diagnosed some form of ovarian tumor and referred the case to me. Admitted to the Old Dominion Hospital, June 8, 1898. On the right side I found a mass the size of a large orange; on the opposite side there was an enlarged fallopian tube, the nature of which I was unable to make out, though convinced it was a hydrosalpinx or pyosalpinx. The ovary on the left side was enlarged and very firm.

Operated upon on June 11. Upon opening the abdomen, it was found that the entire pelvis was domed over by a mass of matted adhesions, the like of which I have rarely seen. It seemed impossible to enter this roof in order to get down into the crevices where lines of cleavage could be established. After a time we were successful in our attempt and began to excavate the uterus and its appendages. When this was accomplished, the left tube was found in a state of hydrosalpinx as large as the thumb of a good-sized hand The ovary on the same side contained a hæmatoma. The mass on the right side was discovered to be an ovarian abscess. Supravaginal hysterectomy was decided upon and accomplished in the usual way, after which a glass drain was inserted. The patient made an excellent recovery. This is a very interesting specimen as showing a multitude of pathologic conditions.

Hypertrophied Cervix, Descended Uterus and Fibroids.

Case V.—Here is another specimen, which I regret to say has been practically destroyed by the evaporation of the alcohol from the preserving fluid. It comes from a woman referred to me by Dr. J. Bolling Jones, of Petersburg. Miss A. L. F., white, aged thirty-eight years, was in good health up to sixteen years ago. At that time noticed a protrusion of the cervix. This has given her much discomfort. Marked nervousness; indigestion and nausea. Admitted to the Old Dominion Hospital, December 7, 1897.

It was perfectly easy to diagnose hypertrophied cervix, descended uterus, fibroids (which were everywhere to be felt over the fundus of the uterus), and also, a tumor the size of a cocoanut to the right of the uterus, but as to what this tumor was, I felt uncertain. I gave the diagnosis of probable dermoid cyst, and the operation proved its correctness.

The uterus was found to contain a number of fibroids varying in size from a hickory nut to a small lemon. Apparently all of them were subserous. It was therefore not necessary to remove the uterus but was to do myomectomies. Therefore, these four fibroids were enucleated and the buttonholes through which they were removed from under the peritoneum were stitched up by Lembert sutures. The mass to the right of the uterus was enucleated, raised out of the pelvis and removed by the ordinary method of ligating its pedicle. A ventro-fixation was next performed. The cervix was found hypertrophied and within the vagina. As a matter of safety the undiseased ovary was removed, hoping to produce an atrophy of the uterus, diminishing the elongated cervix and rendering the fixation more safe. These objects were accomplished by the operation.

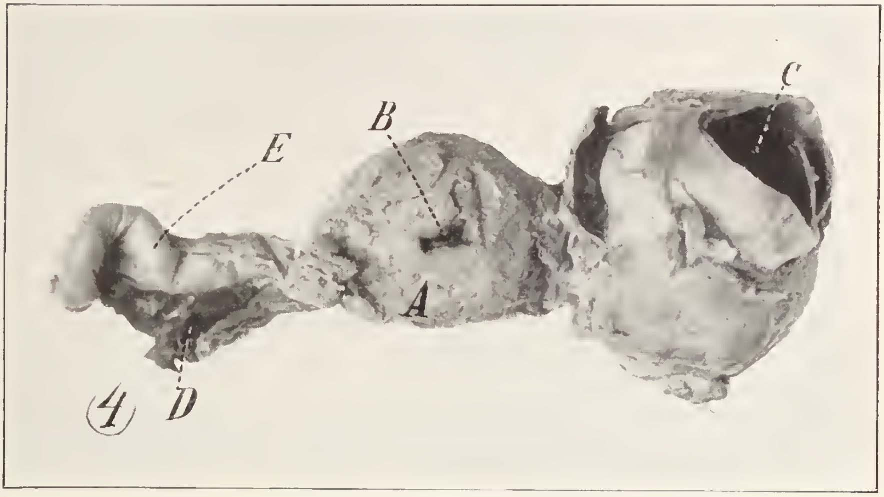


Fig. 4. Uterine appendages and portion of body of uterus from CASE IV. *A* Amputated body of Uterus; *B* Uterine canal; *C* Abscess-sac of right ovary; *D* Hematoma of left ovary; *E* Hydro salpinx of left tube (partially collapsed).

On examining the tumor it was found to be a dermoid cyst. filled with the characteristic cheesy masses and oily fluid, and contained a great deal of long, coarse, brown hair, growing very abundantly from the cyst wall. Teeth, bone, serous and mucous membranes, are occasionally found in these tumors, and by one or two observers it has been reported that tissue resembling brain substance has been found in them. This patient made a first-rate recovery.

THE COUNTRY DOCTOR.

By CHARLES M. ELLIS, M.D., Elkton, Md.

President's Address Delivered at the One Hundredth Annual Session of the Medical and Chirurg.cal Faculty of Maryland, Held at Baltimore, April 26 to 29, 1898.

Gentlemen of the Medical and Chirurgical Faculty:—I purpose in this annual address, which your generous favor enables me to pronounce, to take for my theme the "Country Doctor," and to submit to you such observations upon his habits of life and thought, and the influence of his environment upon his growth and development, as an intimate participation in his life for a third of a century has enabled me to make. I shall endeavor to point out to you in what respect many of his surroundings differ from those of the "town doctor," what are the most pronounced of his needs and the difficulties that stand in the way of his overcoming them, and, finally, with timidity and uncertain of my judgment, make some suggestions of means that seem to me best suited to help him.

The time limit appropriate to this occasion forbids here any detailed and systematic treatment of the subject, although worthy of it, a cursory view alone being permissible or possible. In this delicate enterprise there will be no attempt to throw around him the glamor of romance and of poetry, but to exhibit the man as I know him, with many robust virtues and some equally robust vices, struggling often against primary deficiences of equipment and always against an environment which hinders and discourages subsequent correction of didactic faults.

In the struggle for a satisfactory rural professional life there are many waifs; many who fall into a worse condition, a status of an impenetrably unreasoning empiricism, in which a deceptive experience is the unsafe anchorage of a fallacious judgment, the conclusions of which are defended with an animus that only a supreme egotism can evolve. Many, however, by reason of natural endowments and acquired fitness, elevate their lives to a professional plane on which it is possible for an intellectual life to develop, and on which it does develop, not only to individual sufficiency, but to a public usefulness and a public influence, that on the one hand meets and supplies public emergencies, and, on the other, largely directs and controls public thought and movement. Every community fortunate enough to possess such a man—and composing as they do a large proportion of the country and village doctors few communities are without such—possesses a man the conservator of all its material and ethical interests, a trustworthy adviser in difficulties, forceful and helpful in danger and distress. If not an ideal doctor, his deficiencies are known to himself and not to the community, which in greatest measure regards him as all-sufficient for its needs.

The Highest Type.

From the men of this class springs occasionally a man who is almost ideal in his personality and natural endowments, which, being supplemented by acquired knowledge and judicious training, develops into the well-rounded physician, the perfect family doctor. There is no unequal training of his faculties, no attempt at specialism, but his all-embracing mind and his natural dexterity enables him to touch, utilize and adorn every department of practical medicine. He is ready and resourceful in the presence of emergencies; his obstetrical successes have heretofore been the envy of his teachers, and no operative procedure deters him. But it is in internal medicine where such a man is most at home. Possibly poorly equipped for personal use of instruments of precision, and with little time to avail himself of their aid, he has trained his powers of observation to an acuity which gives great facility for judgment upon the clinical history and symptoms of disease, and his ready and just appreciation of the balance of vital forces is intuitive, making his prognosis unerring.

There are, of course, few such men, but the type serves to emphasize some of the notable differences between the successful country doctor and the more successful city doctor. The one has but his two hands and his two eyes for his work; the more favored town man has command of laboratory facilities and the eager hands and eyes of ambitious students and junior staffs to supplement his own, and a brother of any specialty around the corner, able and willing to help him in any emergency. But such men rarely tarry in the country, for they become restless under the limitations of their surroundings and seek the wider field of urban life for their activities. Sims, Agnew and Goodell are illustrious American examples of that host of brilliant men who have had their earliest training in country practice.

Heretofore the most general characteristic feature of the country doctor's life, and the one that has been most potential in his evolution, and is the equal source of his strength and of his weakness, is the fact that immediately upon his graduation, and with only such training as was afforded him in his didactic course of two or three terms, and the perfunctory attendance upon clinics in which he had no other participation than that of a very distant spectator, he is launched upon the general field of practice, with its liability to be called at any moment to administer to every form of disease, accidents or disability; to diagnose a glaucoma or an eye-strain; to relieve a vertiginous attack, or await the issue of an apoplexy; to relieve an infantile convulsion and muse upon its interpretation; to set a fracture; possibly to do a craniotomy; turn for a placenta previa; do artificial delivery for eclampsia before term; sew up a ruptured perineum; amputate a crushed limb; tie an artery or a hæmorrhoid; determine a compressed or a concussed brain; diagnose an early pregnancy and resist the importunities of the sensuous or their victims; curette a uterus; irrigate a bladder; determine a colic or an appendicitis; certify for insanity; make a sanitary inspection;

make post-mortems for the coroner and give expert testimony upon every conceivable form of hypothetical case. Is it an adenoma or a carcinoma? Is the marasmus dietetic or syphilitic?

It is in the precipitate and constant exercise of his faculties in the contemplation of these problems and their various solutions, unaided, and with great paucity of literature, that his training proceeds, and his success or failure depends not only on his educational equipment, which is too often inadequate, but quite as much upon his mental and moral fiber. If he is honest with himself, conscientious and diligent, his development is rapid and mainly through the cultivation of habits of self-reliance which his surroundings do so much to engender and encourage. And it is this habit of self-reliance that goes so far to mould, to mar his character. A capable man grows in strength and adaptability. In a less capable man, if he is not confessedly and conspicuously beaten, there is frequently the growth of a provincial egotism and a self-sufficiency that is as discouraging to further growth as it is deforming to his personality.

Effects of Early Success.

And, indeed, it is this unamiable quality of exaggerated self-esteem that mars and perverts the character of many of the best of us. His professional training and solitary life are not alone responsible for this most conspicuous blemish of the country doctor's character. An important factor is also initial, and is marked by the indelibility of a first impression. There is no profession in which immediate success is so frequent as in the profession of medicine when the field is a rural one and the candidate is adaptable. So rapid is his growth in popular favor that, between his professional duties and his social entanglements, there is little time for severe study, the apparent necessity for which is diminished by his undoubted success in acquiring business. It is further fostered by his social relations and his professional jealousies. The first surrounds him with a clique of flattering friends, who make the common mistake of endeavoring to elevate their favorite at the expense of his rival, and the other separates him from a companionship of the utmost importance to his development and to his happiness.

If it were possible to abolish the jealousies of the country doctor and the neighborhood cliques they engender, and to smoothe down the excrescences of his character, the outgrowth of his abnormal egotism, what an admirable character he would develop! what a power for good to his people!

It is to be presumed that at the beginning of his professional life the young country doctor is in every respect similarly equipped with his classmate who elects to try his fortunes in the city, providing the proposing candidate for city favor does not determine on a post-graduate course or the prolonging of the days of his tutelage in hospital. These additional educational means are, of course, being availed of increasingly by the young men who are preparing for village and country life. It may, moreover, be conceded that by far the larger number of medical graduates who have previously taken a college degree locate in the larger urban field.

Professional Advantages of City Practitioner.

But with equal equipment at the start, what are the professional advantages of the city man that his country brother does not possess, the possession of which gives him his palpable superiority of reputation and his confessed superiority in educational growth? They are chiefly these:

Hospital wards and dispensaries.
Teaching bodies in all large cities.
Daily intercourse of men similarly occupied.
The medical societies of the city.
The medical libraries of the city.

Can these advantages in any qualified way be brought to the country doctor?

The cottage hospital, with its annexed dispensary, can be made available to every medical man except those located in the most sparsely settled districts.

A post-graduate course at the end of his fifth year of practice, and again in his tenth year, for three or four months, should be the settled intention of every young man who locates in the country, and no complexity of engagements should interfere to prevent it.

The cultivation of cordial and fraternal relations with his neighbors, and frequent consultations in his difficult and responsible cases, will be the sure means of bringing country medical men into much more constant intercourse. I know of no more certain index of a country doctor's worth than the number of his consultations, a test that, unfortunately, the laity, our clients, do not appreciate at its worth.

Function of County Medical Society.

The county medical society admirably substitutes the city societies, which are always open to an industrious and ambitious man who chooses to visit them. To his county medical society the country doctor should bring a devoted loyalty. His attendance at its meetings should be uniform and punctual. Instead of being perfunctory and secondary to any trivial engagement or call, it should be an active primary duty, an engagement for the fixed day that nothing but the most imperative call should interfere with.

A membership thus inspired makes the society invaluable to his growth, happiness and usefulness. I speak with clear conviction of the utility of the county society from a ten years' experience of the old Cecil Society and of its admirable influence upon the profession of my county and with grateful acknowledgment of its beneficial effect upon my own later training. To his State society he should bring an interested loyalty second only to that he bears to his local society. Membership of his guild should be a cherished privilege, to be early availed of and jealously guarded and defended.

The want of books and the absence of libraries is a serious drawback in the life of the country doctor, especially if he contemplates authorship.

The preparation of a paper to be read before his local society is difficult largely on this account, and it has much to do with his diffidence in appearing on the programme of his State society, for here the audience, being largely composed of city men, many of whom are professors or attachés of colleges or hospitals, is a critical one. But earnest and systematic co-operation of neighboring doctors, with the judicious expenditure of moderate sums, will do much to qualify and correct this very urgent need. A book club of five or ten men, contiguously located, with yearly contributions from each of $10 or $20, expended on books of reference, recent monographs and year books, together with a few of the principal American and British journals, will in a short time provide an amount of literature that would be very helpful and stimulating. These should find lodgment in the cottage hospital, if it exists, or in the local library. If neither exists—and in Maryland the one is as rare as the other—then a central drug store will be a convenient repository. The library of the State Faculty admirably supplements these primary stores for the doctors of Maryland and is freely open to its membership.

The diligent use of existing instrumentalities and their amplification, and the creation of new means and measures, the conditions for which are especially favorable in this State, will give an impulse to the country doctors of Maryland to make the effort to minimize the disadvantages under which they labor in comparison with their more favored city brethren in their struggle for general and technical improvement.

The Cottage Hospital.

First among the agencies for maintaining and improving the acquired resources of the village doctor is the cottage hospital. The importance of these institutions in the development of the suburban and rural English doctor cannot be estimated, nor do I believe it can be exaggerated. Near 400 of these centers of philanthropy and of medical education exist in the British islands. How many have been established in America there is at present no means of determining accurately. The number, however, is small, and of these few the majority are located in New England. There is not one in Maryland, nor, so far as I am informed, is there one in any of the Southern States.

About the village hospital clusters not only much of what is best in the philanthropy of the neighborhood, but it becomes also the center of its medical thought and the point at which the co-operative union of the medical men of the vicinage produces its most fruitful results. The discipline of a well-organized institution, and its methodical administration, requires constant inspection, a requisite essential to the successful operation of a hospital, however small. This implies not only method and punctuality on the part of the attending physician, but it involves more or less publicity of their work. Such training and practice would be of great value to the country medical man in developing and cultivating in him those habits of orderly procedure and punctuality of performance in which he is so conspicuously wanting, and to the deficiency of which is chargeable a great amount of loss of time and dissipation of energies. But much more is implied and required of the man who would creditably fill his post—exact methods of observation; the daily use of instruments of precision and of instrumental aids to diagnosis; of the microscope and the practice of chemical examinations. A certain amount of practical bacteriology would be embraced in his daily duties. Careful clinical examinations that the required notations essential to a complete history of cases shall be ample and sufficient will be cultivated. In the private practice of the country doctor these aids to his education and work are used intermittingly or, for the most part, not at all. I have no present knowledge of any country physician who keeps a case-book, and those who habitually and systematically use instrumental aids to diagnosis are extremely few. The cottage hospital, therefore, would be a factor of the highest importance in preserving and cultivating his skill in the use of instruments and processes for diagnosis and the methodical training of his powers of observation. But it will do far more; it will give him constant practice in the technique of surgery and antisepsis and fit him for emergencies. "The lessons learnt day by day at the cottage hospital become in time of need of real value in the ancestral hall," and "the peasant's misfortune becomes the means of saving the life of the squire."

As each doctor of the vicinage has equal rights with all others to follow his patients to the hospital, it becomes the common center of professional intercourse. The constant association of self-respecting men, actuated by the same motives of self-improvement and public utility, should cultivate a spirit of amity, which, at the same time, would bring about appreciation of each other's qualities, teach needful lessons of forebearance for each other's faults and enrich the impoverished fund of professional sentiment.

The Trained Nurse.

When the first cottage hospital was founded by Mr. Netter in 1853 at Cramleigh the trained nurse in the modern sense was unknown. The ordinary domestic service of England furnished all that was required in superintending and nursing. But I presume no one in these later days would think of organizing a hospital, whatever its pretensions, without enthroning one of these queens of the amphitheater in the supreme care of the house. Upon her careful selection and efficiency will in great measure depend the success of the enterprise, and on her tact the usefulness of the institution to the attending physicians. But in another particular can her services and that of the hospital be utilized to the great advantage of the medical men and of the community. One of the hindrances to a satisfactory professional life for a country doctor is the inefficiency, the ignorance and the impenetrable prejudices of the ordinary "experienced" nurse, an inconvenience from which our city brethren are by no means exempt. But not only is the quality inferior, but the supply is limited. In existing social conditions there is no possibility of supplying to the country laborer or mechanic, to the factory hand or to the small or tenant farmer, the highly-trained graduate of a nursing school, and I am by no means convinced that it would be desirable. But a nurse of better training than the domestic, one whose "experience" has been gained under intelligent and competent direction, including a limited period of hospital service, and selected from the young domestic classes of the community, and who will be content with something less than professional rewards, a moderate wage, is a rapid growing and appreciating need. The cottage hospital is the future school which will prepare a great class of women for useful and happy lives in these vocations.

The village doctor of the future will find the constant employment of one of these a great aid in his work. She will attend him at his office, care for his books and instruments, perhaps for his accounts. But, further than this, she should assist him among the village poor by paying subsidiary and supplemental visits, teaching them primary lessons in domestic economy and housekeeping, infant and invalid feeding, and performing those higher duties of solace and comfort which the quick sympathies of a good woman will prompt. An adaptable woman, with good moral tone, would soon be in close touch with her sisters in every class of life, and would not only lighten and elevate the village doctor's life, but would return her cost to him threefold.

Much that I have said will, of course, seem to by far the greater part of my audience, trite and commonplace, but its reiteration is needful in pointing out the salient deficiencies of the country doctor and the lines on which most hopeful effort for their abatement may proceed. Fault may be found with the emphasis of my advocacy of the cottage hospital as being difficult or impossible of attainment. But I have other hope, and a brighter, for this State, the realization of which should not fail if the active aid and sympathy of this Faculty can be enlisted in the work. Every county in the State is at a yearly expense for its sick poor, without facilities for their care. A cottage hospital at the county town should care for these and receive a sufficient annuity from the county treasury. This, with a moderate State appropriation, would be adequately supplemented by local charity and contributions from patients. Every county is required by law to have a salaried officer of health. He should be a young man well equipped in modern methods, put on the staff as pathologist and bacteriologist, to do the greater part of the scientific work, and in a few years, having established himself, give place to another.

The essential elements exist in this State; it requires only to create a public and professional sentiment to utilize them to produce the desired result. Now, the working out of this result lies in the co-operative efforts of this Faculty and the county medical societies. We may well take the initiative by appointing a permanent committee on county medical societies, whose duty should be to aid in organization of local societies where they do not already exist, to stimulate the pride of a flagging membership, and to do the many things that will suggest themselves to fertile minds to make them successful centers of medical interest, thought and effort. They could each be made centers of a modified form of university extension teaching, the lecturers to be supplied by the committee at the expense of the local societies. Indeed, the same methods practised by the University Extension Society could be utilized to an unlimited and most beneficient extent in this field. An interesting outgrowth of the activities of such a committee would be a great increase in the membership of this Faculty, with corresponding growth of its influence in the State. When every licensed physician of Maryland is enrolled among the membership of this venerable Faculty we will form a corporate body of potentialities unequaled by any other combination of citizens; a power in the State that will command attention to our reasonable demands; a force that, if well directed, will make easy of doing works that now seem hopeless or impossible and defend us against future humiliations.

The Future of the Country Doctor.

The doctor of the future will be gravely influenced by the evolutionary forces that are so actively at work in constructing our existing and near-coming civilization. Social progress, as in biology, is made only through selection and stress of contest. These inexorable forces are at work upon all the individuals of society, but the medical man is especially exposed to their rigor. The enormous advances in the elementary departments of medicine, especially in the realm of biology, have increased his special stress in an extraordinary degree. With the characteristic devotion to the public good and the unselfish sacrifice of personal interests that have ever distinguished the medical profession, we are outrunning all other callings in the pressure we are voluntarily putting upon our own fraternity to meet worthily the exigencies of the future. This higher medical education, which has been so enthusiastically advocated, and perhaps too rapidly enforced of late years, has intensified the hard conditions of the country doctor's environment. I make no plea for their qualification or abatement, the inherent difficulties of the situation would seem to make that impracticable; but I do appeal to the rural profession to make intelligent and effective use of that elemental means that has heretofore been potent, in addition to individual reason and culture, in fortifying against the tendency to elimination, namely, concerted action. To this I have endeavored to show that metropolitan and urban medicine is indebted for its proud supremacy; in this I have endeavored to persuade my brethren, the country doctors, lies their future hope of successful survivorship.

ON THE TREATMENT OF CARBUNCLE.[1]

By THOMAS H. MANLEY, M.D.,
Professor of Surgery, New York School of Clinical Medicine.

It is well known that felons, erysipelas and carbuncle are most commonly observed during the spring and early summer. They all present many features in common, although the clinical distinction is clear enough. They often appear to be aroused into activity by some local change in the tissues, produced and maintained by what we vaguely designate "constitutional disturbances," but of which we certainly know very little.

Carbuncle.

Meredith defines a carbuncle as "a local specific inflammation of the subcutaneous areolar tissues, rapidly leading to sloughing of the deeper and more compact parts; followed by destruction of the skin, the whole of the dead tissues finally separating in the form of a slough." [2]

Carbuncle is a lesion which presents many very puzzling features. In all of its phases, as a rule, it is a very painful affection, in most instances commencing as a papule with an indurated base, assuming an intense inflammation, finally running into suppuration and gangrene, with later granulation and cicatrization of the ulcer. In this respect it is identical with whitlow. In other more aggravated phases the extent of constitutional disturbance is considerable; bodily strength rapidly fails and well-marked evidence of infection of the circulation is present.

---

[1] Read before Society of Medical Progress, New York, March 20, 1898.

[2] Quain's "Dictionary," second edition, p. 275.

In many cases of this class carbuncle kills. Meredith says that "death may come from exhaustion, which is sometimes aggravated by *hæmorrhage, the result of free incision* [italics mine], but the most frequent cause of a fatal termination is pyæmia."

Local Changes in the Parts.

Carbuncle kills, then, by the protracted, agonizing distress it occasions, which racks the system and cripples the vital powers; and by the toxic effects of resorbed dead tissues, ichor, pus and bacteria. This lesion gives issue to grave symptoms only when certain local pathological changes set in.

How may these be aborted or rendered innocuous, or is either result possible? This brings us to the consideration of treatment.

Treatment: Constitutional or Local, Prophylactic, Palliative or Radical.

Within the past year two notable essays on the therapy of carbuncle have been contributed by two distinguished members of the medical profession of New York: the first by Dr. L. Duncan Bulkley, and the second by my colleague, Prof. Carl Beck. Both of these contributions are noteworthy because of the extreme tendencies inculcated in each; by the former in the direction of conservatism and palliation, and by the latter in recommending early and complete excision.

Early Excision.

Beck says: "As the infiltrated tissue must be eliminated at all hazards, be it infected by whatever bacteria, it is better to sacrifice it at once and to remove it with its disastrous inhabitants."[3]

Theoretically this position cannot be assailed; *i. e.*, a limited focus of virulent infection of any description, wherever found, should be eradicated. But practically this is often either injudicious or impossible.

Anthrax, although its favorite site is along the lateral areas of the vertebral column, may develop on any part of the cutaneous surface of the face, the trunk, or the extremities. From our experience in excising chancres or buboes, it is well known that before the stages of suppuration or ulceration it is impossible to determine just how wide the limit of invasion is; and, hence, quite in spite of a free dissection, suppuration will invariably follow, with a large, open breach in the tissues, left to heal by granulations. Again at times a wide area is involved by an infiltration which extends deeply into the neighboring parts, so that a free division of important and highly vascular structures will be necessary in excising the indurated parts.

In the incipient or papillary stages of carbuncle, excision affords us a simple means of at once and radically dislodging it, though we may have to repeat the procedure with each eruption of a fresh papule.

---

[3] "Radical Treatment of Carbuncle." The *Clinical Recorder*, January 1, 1898.

Finally, the most cogent objection one can bring against excision is that it may involve an operation requiring the employment of pulmonary anæsthetics, although when the area invaded is of limited dimensions a local analgesic will suffice; but in any event the tissues must be divided with loss of blood. It goes without saying that in carbuncles of huge proportions extending deeply into important structures it is quite impracticable. If anything like an extensive dissection be required, our patient must remain quiet until at least repair is well begun.

Conservative Treatment.

At the late meeting of the British Medical Association in Montreal, Dr. Bulkley, of New York, submitted a somewhat remarkable essay on the treatment of felons, boils and carbuncles, which, coming from one so well and widely known, must work incalculable mischief.

He begins by saying that "the knife has long been associated in the minds of both the laity and profession with the treatment of boils, felons and carbuncles, and incision is the recognized treatment on all sides." He declares that he has not incised a carbuncle in fifteen years, and adds that "if others will carefully and intelligently carry out the details in treatment, they will have equally as good results as himself." He advises the same general plan for felons and carbuncles. Now, it certainly would be an enormous gain to medical science if surgery could be dispensed with in a class of cases which practitioners have always regarded with serious apprehension, and which are sometimes a source of terrible torture and even danger to life.

Let us see what this innovation consists in. First, internal medication; the sulphate of calcium for its supposed controlling action on suppuration, purgatives, tonics, etc. Secondly, something locally, of a protecting, soothing and antiseptic character. The doctor quotes Paget as condemning the incision of carbuncle under all circumstances. It is true that this celebrated surgeon severely criticized the indiscriminate cutting of carbuncles—the deep crucial incision—unless one was certain of deep-seatetd suppuration; but that was nearly twenty-five years ago, long before the first days of Listerism had flashed on the horizon, and hence principles of treatment regarded as orthodox then are effete and antiquated.[4]

Kaposi declares that "treatment of carbuncle in its direct sense is almost powerless, as it cannot be cut short by ice, heat or early incision."[5] Gottheil advises "free and early incision followed by thorough curetting as of benefit in some cases, but complete extirpation is better."[6]

Sulphide of calcium in my own hands has invariably proven inert as a pus destroyer; but what is of vital importance to bear in mind right here is that in the early stages of both felons or carbuncles there is no pus whatever. Several years ago the last phalanx of my little finger (left hand) was the seat of a felon. For three days and nights the agony was something dreadful. In the meantime various local remedies were tried, without the slightest relief. On the fourth day the physician was permitted to do what he wished to do on the first, viz., to sink the blade of a strong bistoury down deeply to the bare bone. The effect was instantaneous, but not a drop of pus escaped. Several times in the early and always the most painful stages of felons have I opened them with the same result. My experience has been that when pain ceases gangrene has begun, or the bone is necrosed. In genuine felon, true paronychia, which does not early abort of itself, penetration to or destruction of the diseased process beneath the periosteum alone will save the affectetd joint or cut short the inflammatory changes.

---

[4] Paget's work appeared in 1875.

[5] Kaposi: "Skin Diseases," p. 217, vol. i.

[6] Gottheil: "Illustrated Skin Diseases," p. 176.

It is inconceivable and contrary to all experience that any oleaginous, impermeable or antiseptic substance can penetrate through the unbroken derma to reach the seat of disease. In fact, there are but very few medicaments which the skin can absorb at all.

That the constitution is involved in these cases is undouted, and that bracing reconstructives are sometimes needed, is certainly correct. In advanced cases, however, the grave enfeeblement of the vital powers with marked evidence of pyæmic absorption is a consequence and not a cause. That glycosuria is anything more than a coincidence occasionally in carbuncle is by no means proven.

Sir James Paget is the authority for the statemeat that carbuncles sometimes spontaneously abort early. I have never seen one do so, and the probabilities are that the local induration described by him as carbuncle was some simple form of papillary intumescence. The tendency of unchecked carbuncle is toward progressive destruction of tissue, suppuration, necrosis and sloughing of tissue, with the great dangers superadded of septic infection, pneumonia, meningitis, etc. To dally with a lesion of such a serious charactetr is, to put it mildly, a grave error. In the remote past, before the days of anæsthetics or antiseptics, we did well to spare our patients the terrors of the blade for whitlow or carbuncle, until every possibility of mistake in diagnosis was eliminated and the thing was "ripe;" but that won't pass for up-to-date surgery in our time; for it may be, and it should be, stated in the most emphatic terms that at the present, in both anthrax and felon, surgical interference must be prompt and radical, though, happily for the poor sufferer now, it may in the former spare him mutilation or the loss of even a single drop of blood.

Potential Cautery.

Moty reports a case of anthrax affecting the lower lip, with secondary foci on the breast, the forearm, and the shoulder, treated by puncture with Paquelin's cautery at each suppurating orifice and subsequent dressing with carbolic acid. In some of the smaller foci the disease was checked at once by the puncture, and no more pus was formed. As for the deep-seated ones, the author remarks that the patient's sensations are the best guide to their situation, for at first they do not betray themselves by physical signs; yet it is of importance to treat them promptly, whether pus has formed or not. The part may be cocainized before the cautery is applied.[7]

---

[7] The Indian Medical Record, February 17, 1898

In the early stages both of paronychia and anthrax they may be so effectively benumbed with cocaine as to admit of all necessary manipulation. The potential cautery, Paquelin's or the electro-cautery, may be used with great satisfaction on many types of carbuncle not calling for total eradication and which are easy of access.

Direct, Immediate and Total Destruction of the Carbuncular Tissue by the Deep or Hypodermic Injection of Pure Carbolic Acid.

Five years ago I commenced the treatment of carbuncle by the injection of pure carbolic acid. I am assured now that this method is simple, safe and durable in its results. To inject concentrated carbolic acid directly into the living tissues, however, may strike one as a measure fraught with danger, and is a measure which must be exceedingly painful. The first case of carbuncle which I tried it on came under my care in its acute inflammatory stages. It was the source of the most intense pain, with marked constitutional disturbance. The pulse was 116 a minute, the temperature 103° Fahr. Through loss of sleep and appetite my patient was reduced to great weakness. He had delayed professional aid till late, because of his fear of an operation.

In this instance the carbuncle was large, with several openings, lying over the midcervical region of the spine. In this instance the effects of carbolic-acid injection were most extraordinary. Since then I have treated in both sexes more than fifty cases of carbuncle. About three-fourths of my patients were in hospital and dispensary practice. Five were physicians and three were physicians' wives. There was no mortality, and in no single instance was there protracted delay in repair, except in those which came under my care late. Without exception when employed early this method arrested the advance of the boil, nipped it in the bud. so to speak, destroyed it root and branch, and, what is an enormous gain under these circumstances, permitted the afflicted to continue with comfort their ordinary occupations. Crocker in his work on skin diseases notes that "it is said that a one to ten per cent. hypodermic injection of carbolic acid with abort carbuncles." He does not appear to have had any experience with it himself.

Local and Constitutional Effects of the Deep Injection.

The first sensation the patient experiences after the needle is deeply lodged is a burning heat from the crude acid. This is quickly followed by an immediate loss of all pain. The acid in places when it issues up blanches and chars the tissues, coagulates and destroys the purulent foci over a wide area. In the diminutive inital papule it also at once numbs all pain and stamps it out. The relief is so prompt and the destruction of infective spread so decisive, that the suffering patient again enjoys his unbroken sleep and recovers his appetite. And in this procedure we have an illustration of just the reverse of what is promised through constitutional measures, demonstrating as it does that the *fons et origo* of all the distressing and grave systematic disturbances of carbuncles are entirely dependent on a most virulent local septic process—a process which, if left undisturbed, proceeds to the total death of all the tissues invaded. In no instance in which I have employed these injections has there been any evidence of toxic effects on the system through absorption by the circulation, although it is possible that some of the salutary effects resulting may depend on the phenic elements acting on the system. This view derives some support from the interesting case recently reported by G. Scott Jackson, M.D., of Glasgow.[8] His patient had anthrax, resulting from an infection of a sore on a sheep. The sore on the arm having attained great proportions, the whole limb being enormously swollen, Jackson cut deeply down through the infiltrated mass, and then mopped the divided surfaces with pure carbolic acid. Besides, he immediately placed his patient on carbolic acid and iron internally, ten grains of the acid and ten of ferric tincture. From a desperate condition his patient was immediately relieved, with a subsidence of all the symptoms and rapid recovery. The writer believed the satisfactory result was attributable to the loss of blood after incision and the large doses of carbolic acid.

Technique.

Before describing the details of the phenic injections for virulent abscess it is necessary to state that they must be modified to meet the requirements of the various stages and types of the lesion. It may be well to bear in mind also that when utilized late their most precious value is lost. The time for prevention, prophylaxis, has passed, and dead tissue, cannot be recalled to life; but even when utilized in the advanced stages of the malady their value is infinite in arresting pain and checking the farther advance of disintegrating processes.

In employing this powerful agent let us be quite certain that we are dealing with a genuine anthrax, in order not needlessly to subject our patient to such heroic treatment for, perchance, an innocuous transient papule. Before we proceed to inject the fluid acid it is necessary first to carefully cleanse the surface, and then spray with ethyl chloride the part about to be punctured.

In my early experience I used the pure dissolved crystals of carbolic acid for injections, but later it was found that an eighty or ninety per cent. solution answered equally well. In all cases it is necessary to have a long and strong hypodermic needle, as the tissues are sclerosed and very resistant.

When an injection is made into a carbuncle in its early papillary stage, before extensive infiltration has set in, not more than from one to three drops are necessary. In all these cases, however insignificant the papule, after the acid has penetrated its base, coagulated pus will well up through its center. Care should always be observed that the surrounding integument be protected against thte corrosive effects of the escaping fluid. Quite generally for small undeveloped carbuncles one injection will suffice; but, as we may miss the central "core," or infective focus, the first time, it may be necessary to repeat it once or twice, although this is unusual.

Carbuncle in the Suppurative Stages.

After the multiple pustules of a large carbuncle have opened, its surface is raised high, and a wide-reaching, deeply inflamed zone surrounds it; the phenic-acid injection entirely dispenses with the need of incisions for the relief of tension and for drainage, as it totally destroys the imprisoned pus and the pyogenic bacteria which produce it. Pyogenic action extinguished, pain ceases and resolution begins.

---

[8] *Lancet*, March 5, 1898.

In this class the acid must be injected with a free hand. In one case of a most aggravated description in the wife of a physician, into the enormous mass over her back I repeatedly injected as much as thirty drops each time. In carbuncle of massive proportions or great depth the fluid must be sent into the base.

Here caution must be observed, if we are operating over vascular areas, not to pierce the walls of a vessel and send the toxic charge into the general circulation. It is equally important to clear the large nerve trunks.

In most ordinary cases in this suppurating stage from fifteen to thirty drops are ample completely to destroy all purulent foci. But one needle puncture is needed through the integument. After a few drops are deposited at one point, the needle is partly withdrawn, to be sent in again in a different radius after being turned on its axis. This is repeated until the whole base is thoroughly cauterized.

After-Treatment.

When this method is employed as a prophylactic early, there is practically nothing further to do other than to keep the surface protected until charred center, the slough, is detached and thrown off, when complete healing quickly follows.

In large suppurating anthrax carbolization stays its progress only; the extensive gangrenous sloughs must be thrown off by a slow process of ulceration. At times a large hiatus is left to close in by granulation. Here complete cicatrization is sometimes very tedious because of the septic state of the system and want of plasticity in the blood. During the separation of the slough the patient should be freely stimulated and strengthened by the bitter tonics, iron, etc., conjoined with nourishing food. In severe cases the heavy wines and malted liquors are highly useful.

Types of Carbuncles Not Calling for Active Surgical Measures.

Sir James Paget pointed out two very important features of carbuncles which it is well carefully to bear in mind when radical measures of treatment are being contemplated: 1st, that heavy carbuncles tend to spontaneous disappearance in their early stages; and 2d, that many do equally as well without the incision as with it, although he did not deny that the scalpel has a place in all deep-seated suppurating cases.

And so would my experience lead me to advise nothing other than palliative measures in any instance when there is absence of pain; but pain is an essential clinical constituent of any true carbuncle. If it be but transient and trivial, the sore should be let alone, or treated by simple measures; certainly by no aggressive surgery. Such a case I lately saw in the sister of a physician. The carbuncle was situated on the buttock; though freely suppurating it was quite painless. With moist dressings and compression repair was quite rapid and complete.

Cases Suitable for Conservative or Non-Operative Treatment.

Pseudo-furuncle or carbuncle, those painless papillary projections from the cutaneous surface which occasion no inconvenience and make no impression on the system, should be treated with placebos or simple remedies.

For some reason, yet a mystery, even a malignant ulcer may continue its ravages without any pain; and so sometimes one may resolutely convince himself that he has no severe injury, though the head of a bone is luxated or a shaft sundered, because he endures no sufferings. In certain individuals a suppurating, sloughing carbuncle causes no pain or marked soreness. Generally with this class there is but little if any severe constitutional disturbance.

With the above class Dr. Bulkley's line of treatment may be adopted with advantage, because it obviates mutilation and seeks to eliminate the *materies morbi* from the system. As between excision and phenic congelation, for reasons set forth, the painless mummification should be quite generally adopted.

IRREGULAR GOUT.

By JAMES S. KENNEDY, M.D., Chambersburg, Pa.

Gout, according to Osler, "is a nutritional disorder, associated with an excessive formation of uric acid and characterized clinically by attacks of acute arthritis, by the gradual deposition of urate of soda in and about the joints and by the occurrence of irregular constitutional symptoms."

By the laity and many physicians, gout is supposed to only affect the articulations of the great toe, but this is a grave error, as it may occur in any of the articulations and even in the muscles and tendons. Wherever the urate of soda is deposited, there will the symptoms of gout manifest themselves. Taken in this broad sense gout is extremely frequent among the American people, and is undoubtedly growing more so as the various sedentary occupations increase and physical exercise becomes thereby curtailed.

The vast majority of the medical profession admit now that gout is primarily due to a deposition of the insoluble urate of soda in the tissues and articulations. The blood shows a great increase of uric acid and Garrod believes that acute attacks are due entirely to the accumulation of urates in the blood.

Although the first joint of the great toe is commonly affected, the ankles, knees and joints of the wrists and hands are very often attacked. In such joints there may be found deposits of urate of soda and the surrounding ligaments become filled also with the deposit.

The kidneys show deposits of urates between and in the papillæ, and there is generally present, if the disease has been of long standing, an interstitial nephritis.

In this paper, the writer wishes to speak especially of the symptoms and treatment of that class of cases of gout, known as irregular gout, or those cases to which the term "gouty diathesis" is applied. This form of the disease occurs, as Osler says, "in persons who have lived not wisely but too well, who have eaten and drunk largely, lived sedentary lives, and yet have been fortunate enough to escape an acute attack." No age is exempt and the symptoms to which the disease gives rise are protean in number.

The folowing are some of the many symptoms which patients suffering from irregular gout complain of: So-called bilious attacks with foul breath and tongue, constipation, and the shallow skin denoting a torpid liver, pain around the heart and darting pains in the joints and muscles; a feeling of faintness and vertigo; heat and itching of the feet, leg cramp and constant or periodical headaches. The urine is high colored, acid in reaction and may show an increase of uric acid, but in many cases this increase only occurs periodically, occurring after an increase of the symptoms. Sugar is often found, and such patients are very liable to the formation of urinary calculi.

The treatment may be divided into the hygienic, dietetic and medicinal.

The hygienic treatment consists in keeping the skin active by daily baths, the wearing of warm clothing and a certain amount of exercise. Any form of out-door exercise is good, but walking, rowing and horseback riding are probably the preferable forms. The patient should lead a quiet life and eat sparingly, but often, if necessary.

The diet should consist of meat, except veal and pork, in any form, eggs, the fresh vegetables and the acid fruits. The following articles should be avoided: All starchy or sweet articles of food, sugar, potatoes, salt meats, lobsters, sweet fruits, especially melons and strawberries, all forms of hot bread stuffs and the cereals.

The medicinal treatment has until recently proven rather unsatisfactory in the author's hands. Mineral waters are but feebly beneficial and such drugs as colchicum, iodide of potassium and guaiacum are sometimes though rarely useful. Lithium is strongly recommended by Osler, but the author met with but little success with it until quite lately, when a combination of lithium with an alkaline laxative, known as thialion, was brought to his attention. Thialion has been used in several heretofore intractable cases with really surprising results, as the two typical cases which follow demonstrate.

Case I. This case is a good illustration of that form of irregular gout where the symptoms are mainly gastro intestinal. J. H., æt. 30, American, family history, gouty. Complexion sallow, and rather cadaverous. Examination of urine showed large quantities of calcium oxalate crystals and a few uric acid crystals. Reaction acid, specific gravity, 1.029. His tongue was thickly coated and the breath foul.

The patient came complaining of periodical attacks of nausea and diarrhœa, constipation being present in the interval. These attacks occurred about every three weeks. He complained also of the following symptoms: Vertigo, pain of a shooting character in the arms and legs, headache, a peculiar gnawing feeling in the stomach continually, and great lassitude and weakness.

He was given directions concerning diet and exercise, and directed to take a teaspoonful of thialion in half a glass of hot water three times a day for two days and then once a day immediately after arising in the morning, until told to stop.

He faithfully followed directions and reported himself in two weeks as decidedly better. At the end of a month he reported as being entirely well, and said that for ten years he had not felt as well as he did at the present time. The change in his appearance was really remarkable and proof positive of the value of the treatment.

Case II. M. C., female, æt. 27, had suffered for some weeks from the following symptoms: Pain, sometimes sharp, sometimes dull, in the joints of the feet and hands, heat and tenderness in the feet, constipation, headache, and a general feeling of malaria and lack of ambition. At times the pains in the small joints were so severe as to awaken her from sleep. She had observed that when the pains were most severe, her urine deposited a brick dust sediment. An examination of the urine showed a highly acid reaction, large amount of urates and a high specific gravity.

She was put upon the same treatment as the above case and at the present time, three weeks after commencing treatment, her symptoms have entirely disappeared and she feels perfectly well.

These two cases cited show the effect of this new lithium combination in this disease, and it would seem that in thialion we have a most efficient agent in combating irregular gout.

TO PROMOTE ASSIMILATION IN DIARRHOEAL AFFECTIONS.

In the treatment of gastro-intestinal diseases attended with severe diarrhœa the problem that often confronts the physician is how to administer a sufficient amount of nutritious food without increasing the existing irritation and discomfort. Ordinary foods are frequently so imperfectly digested as to be unable to make good the serious drain upon the patient's vitality produced by the profuse diarrhœal discharges. It is with a view of supplying a food-product adapted for this common class that a preparation has been recently introduced to the medical profession which consists of the nutritive elements of milk in their most assimilated form—the albumoses—together with a small amount of an astringent in firm organic combination with the protoid material. This product, known as lacto-somatose, has thus far been found to answer all the demands for a food in diseases attended with severe diarrhœa, such as enteritis, cholera infantum and morbus, typhoid fever. It is agreeable to the palate, readily soluble in a variety of solvents, and, above all, supplies a large amount of concentrated available nutriment, without irritating or disturbing the stomach and intestines; on the contrary, it exerts a beneficial influence in regulating the intestinal functions and arresting the diarrhœa, and thus contributes materially to a speedy recovery.

MILITARY SURGERY.

THE UNITED STATES ARMY MEDICAL DEPARTMENT IN THE FIELD.[1]

By HENRY S. GREENLEAF, A.B., M.D.,
Acting Assistant Surgeon, U.S. Army.

On returning to the United States after my experiences gained in Cuba, I feel that it is but just that facts learned and observed there as to the great work done by our United States regular army and medical corps should come before the public notice, and especially before that of the medical profession. Where only great praise and gratitude should be expressed for their heroic work and suffering, I am astonished to find the daily press and, in some instances, medical journals criticizing and finding fault and only placing the credit where they are most personally interested.

Fortunately, our records will show, in due time, where the real merit lies; but, unfortunately, it is at this present that they need the encouragement afforded by the praise that they so richly deserve and have earned at a cost that their country can never repay. Almost enough has been said to show the gallant work of our volunteers, but in the enthusiasm for those in whom personal interest is felt we have sadly neglected to place the credit where it was most deserved—*i. e.*, with the regular army for its prefect discipline, heroism, and coolness, under circumstances which those only who were present can understand. Our standing army, with the aid of the volunteers, has placed our country in the front ranks of the soldiery of the world. It was with great pride that I heard, personally, a foreign military attaché speak with wonderment of the astonishing discipline, coolness, and determination of our troops. It would be both impossible and ungrateful to detract from the credit of the gallant work of most of our volunteers, but the fact remains that the brunt of the fight was borne by the regular army, according to the policy of the campaign, and they have not received their share of glory. In the medical department is this especially the case. It is with mortification that I have heard and read everywhere only the most harsh criticism awarded to the most excellent work that our medical officers have accomplished, which is in no respect secondary to the work done by other branches of our army and navy, and under difficulties which appeared insurmountable. On the 8th of July we arrived off Siboney in the hospital ship *Relief*, and some of our officers, including Lieutenant-Colonel Nicholas Senn and Major George M. Torney, were taken ashore in a launch from the battleship *Oregon.* The sea during the greater part of the day was so rough that this was only accomplished with great danger to the launch and to the lives of those who were to make the trip. On the following day we managed to secure an anchorage and get our launch afloat, but not until we had lost one anchor and damaged one of the launches. I mention these facts as illustrating the difficulties met in landing the supplies from our ship. This had to be done entirely in small rowboats, when they were not in use for transporting the wounded, and during the few hours that the conditions of the water allowed.

---

[1] *New York Medical Journal.*

It is true the *City of Texas* had landed, and was landing, many of her supplies; but she is a much smaller vessel and could anchor near shore where the water was quiet for the greater part of the day. Moreover, through the courtesy of the navy, there was placed at her disposal the launch from the battleship *Oregon* with an officer and a well-disciplined crew. If the difficulties that the *Relief* battled with in the landing of her supplies and wounded are understood, it is plain that similar ones were encountered, and to even a greater extent, by the quartermaster in landing his supplies—medical, ammunition, commissaries, mules, wagons, etc.—before any wharfs were constructed and when an enemy was lurking in the bushes.

As the troops landed they were sent almost immediately to the fight, and in an incredibly short time our medical officers had as many as twelve hundred wounded on their hands before tents could be properly pitched or boxes opened, and the material arranged for surgical work and dressings. But by Herculean work this almost impossible task was accomplished; and with shame be it said that these officers are being criticized and advantage taken of the fact that they, under these extreme circumsances, asked the American Red Cross for some assistance. This was readily and efficiently given, and those women did a service that our wounded will never forget. The promptness with which they were able to get their medical supplies into use is explained by their having only medical supplies on their ship. They were able to get a convenient anchorage and they had help, through the courtesy of the navy, for the *Oregon* lent them her steam launch and a crew. Physicians from the fleet were sent to the division hospital to assist in the care of the wounded at this trying time, and served most efficiently, but no notice of this has come before the public. Here, again, as with the volunteer military organizations, we see the credit claimed and given solely to the Red Cross Association, when the real work was done, and the credit earned, by the medical department of the United States army. It could not be otherwise, when we find at the head of those who were in charge men of such sterling qualities as Colonel Pope, United States army; Major L. A. La Garde, United States army; Major Wood, United States army; Dr. Nancrede and Dr. Vaughan, United States volunteers (professors at Ann Arbor Medical College, Michigan); Dr. Nicholas Senn, United States volunteers, of Chicago; Dr. Guitéras (professor of clinical medicine, University of Pennsylvania); and Major Torney, United States army. Each of these has demonstrated to the medical world his ability to deal with such emergencies in a way that it would not be natural for us to expect from the Red Cross Association, great as that organization is.

Largely through the efforts of Chaplain Gabbet and under the direction of Major La Garde, large hospital tents were pitched, end to end and five tents deep; six such rows of tents were made, constituting four large wards, one supply tent, and one operating ward. These were placed on ground free from grass and perfectly drained. In each operating tent was arranged a field operating table; a dressing table, with a tray containing a complete outfit of instruments, boiled before use; towels sterilized by boiling; aseptic dressing packages and silk and catgut ligatures prepared by Johnson & Johnson; sterilized absorbent cotton, alcohol, carbolic acid, creolin, iodoform and bor-acetanilide powders in sterilized powder shakers, and an abundance of muslin and sterilized gauze bandages and splints. Solutions of bichloride of mercury, 1 to 1,000, and of carbolic acid, 1 to 20, were kept in large five-gallon demijohns and used in stone basins for preparing the hands. Medicines were in tablet form in field cases, and the wards were furnished with cots, blankets, and pillows. In like manner the First Division Hospital was erected and equipped, though the supplies here were more limited because of the impossibility of prompt transportation. For forty-eight hours these men and their assistants worked in unison, some organizing the hospital, others attending the wounded under temporary difficulties, and this without sleep, taking their coffee and hardtack at the side of the operating table. Most excellent results crowned their labors. The mortality and condition, when we consider the gravity of many of the wounded, were remarkably good. Many records of some of the most serious of these cases have been published by Colonel Senn in the *Medical Record* for July 30, 1898. The most flagrant faults in camp sanitation may be laid at the door of other departments than the medical, for precautions against them were urged, but were not heeded.

Whether as a result of this, or whether it was an inevitable consequence of the season in the country we were in, yellow fever soon made its appearance to greatly complicate matters. In several instances it appeared among the wounded, and it became evident that these cases, rendered especially susceptible by nature of their run-down condition, must be removed; so action was promptly taken in this direction. Those most able to endure hardship were sent by transports, as the lesser of the two evils, for their welfare, and the others were put on the hospital ship *Relief*. At this time, a fierce battle being imminent and the probability of a large number of wounded being great, in order that these should be properly treated, now that Siboney was unfit for their reception, it was deemed necessary to make the *Relief* the base for the reception of the recently wounded and those requiring special surgical care. With this end in view, she was ordered to send all cases possible on to the transports with those from shore. Each ship was equipped as perfectly as could be under the circumstances, and each patient carefully examined by Dr. Guitéras for evidences of infection with this dreaded disease. There was no stone left unturned by the medical department either for the protection of those at home or for the comfort of those about to depart, though both such charges have been made in the most unjust manner, in one instance by an editorial in the *Medical Record*, and in the other by Miss Jennings, of the Red Cross Society, through the daily newspapers. When the *Seneca* was about to depart, each department and man had its hands full in attending to those who were to go, and in providing for those unfortunate enough to have to remain, and that against indescribable and incomprehensible difficulties. Despite this, however, all requisitions were filled for these transports, and if Miss Jennings, as a nurse, found necessary supplies wanting, she should have reported them to the physician under whom she was serving and they would have been issued on his requisition.

Many deplorable sights and conditions such as Miss Jennings has described I have also seen, and I can appreciate that a woman's sympathetic nature would be so offended that she would want to lay the blame on somebody that such conditions should exist at all. As a matter of course, such things are inevitable in time of war, and that without any special blame due to any one.

Having been in attendance on so many of the wounded in my duties with both division hospitals and on the hospital ship *Relief*, I can say with certainty that the criticism against the medical department has not emanated from the wounded.

THE ARMY MEDICAL INVESTIGATION A FARCE.

(*The Medical News.*)

Great chagrin and keen disappointment are being felt by all interested in the reputation of the medical arm of the service by the autocratic way in which the head of the War Department has dismissed the case of the transports "Seneca" and "Concho" which recently brought sick and wounded soldiers home from Cuba in a condition of wretchedness and neglect. Serious charges of incompetency and neglect of duty by the officers in charge of the commissary and medical supplies of the army of invasion at Santiago have also been made and the incompetency there shown has been charged in some quarters to lack of administrative ability on the part of the Surgeon-General of the army. In answer to these charges Surgeon-General Sternberg declares that he is not responsible and to vindicate himself and his subordinates demanded of the War Department an official investigation. This demand of General Sternberg has been met by the cavalier statement of the Secretary of War that in the transportation of the troops and in the campaign against Santiago there was no neglect and no incompetency; that hunger, sickness, and suffering are incidents of war and whatever has happened was due to unforeseen circumstances and no one is to be held responsible.

Is no one responsible for leaving the medical supplies at Tampa when the transports sailed for Cuba? Is no one responsible for the fact that when the supplies did arrive off the Cuban coast they were not landed but carried back to Florida on the return cruise? Is no one responsible for the fact that while our soldiers on the fighting-line were without food and the ordinary comforts of a soldier's life a whole ship-load of supplies was left rotting in the hold of a ship at anchor off the coast? Is no one responsible for the wholly unnecessary suffering, want, and hunger experienced by our wounded soldiers, so graphically described by our special correspondent in the *Medical News* of last week? Does the Secretary of War think for one moment that such flippant explanations explain anything, or satisfy the indignant but long suffering friends of the soldiers that these horrors will not be repeated? No.

Does he imagine that the thin coat of whitewash applied by his investigator Heyl over the "Concho" case can cover up the flat contradiction therein contained of well-attested facts, the avoidance of other charges or the implied confession of it all when he asserts that these abuses will not occur again?

Is General Sternberg going to be satisfied with this farcical procedure? We hope not—he owes it to himself, to his department, and to the army of faithful and efficient officers in the medical arm of the service that no part of this responsibility shall be allowed unjustly to rest upon the medical officers. The whole truth should be brought to light and responsibility fixed by a prompt, impartial, and searching investigation.

THE BREAKDOWN OF THE MEDICAL SUPPLIES IN CUBA.

(*New York Medical Journal.*)

If anything were needed to emphasize the absolute necessity in warfare of an army medical department, organized on a corps basis, autonomous and depending for neither personnel, material, transport, commissariat, or any other necessities upon external departments, it would be the breakdown which has been shown to have occurred at Siboney.

Attempts have been made to fasten the blame for this upon the medical staff of the army, as attempts were made to fasten it upon their British comrades years ago for a similar breakdown which occurred under nearly the same circumstances during the Egyptian campaign. The British medical officers learned the lesson then and there that, until they had a completely organized and equipped corps, officered and disciplined by themselves, self-containing, independent of every other department, and in complete control of its own men, transport, and commissariat, they would be eternally subject to such grossly cruel and unjust blame. They set their shoulders to the wheel and fought the fight which has recently terminated so triumphantly for them in the extortion from the British government of the consolidation of the Royal Army Medical Corps. The regimental and departmental systems of medical aid are absolutely impracticable on active service, as both the gunners and the sappers found out long ago, when they got their respective arms organized into corps of artillery and engineers. The system of regimental medical officers is effective enough in camp and quarters in time of peace; it is also unnecessary then—for, save on a few isolated posts, it is always possible to employ local practitioners at government contract rates. The departmental system is a sort of halfway house between the regimental and the corps systems, possessing all the disadvantages of both and none of the advantages of either. It, too, may work satisfactorily enough in time of peace. But an army exists for war, not peace, though it has to be maintained through the latter, and it is just here that any system of medical service short of a completely equipped and organized corps of men specially trained for that service, reserved solely for it, having all their material in their own possession, and dependent upon no other section of the army for aid of any kind, must inevitably break down.

If that has been found to be the case in a country like Britain, where the standing army is always maintained at a considerable strength, and the establishment of the medical staff corps is kept up to the proportional standard called for by the fighting needs, how much more is any less complete system likely to break down in a country such as this, where a large army is liable to be suddenly raised without previous preparation and after a long period of peace.

In our judgment it would have been a miracle had there not been a good deal to complain of in the campaign from a medical point of view, and that there has been reflects, in our opinion, no discredit either upon the medical officers of the army or upon their chiefs; but the responsibility must rest with the War Department and the system of army medical service in this country.

Our army medical officers should take heart and use their breakdown to emphasize the necessity for the further organization and consolidation of the army medical corps, officered for all purposes of administration and discipline by themselves, as a regiment is by its officers, kept up to a strength proportional to that of the standing army for the time being, and having complete control by its own quartermasters of all necessary material, including commissariat, transport, etc., so that it shall be under no necessity at any time of making calls on other departments, harassed probably and at their wits' end to meet the ever-changing requirements of the military force afield.

Then, should it on any future occasion become necessary to suddenly increase the army by a large force of volunteers, there would be in existence a nucleus with which the volunteer medical service could be promptly brought into line, just as volunteer regiments are quickly conformed to the regular standard.

From all we can learn, the army medical officers of this country, from the highest to the lowest, have done their duty well and manfully in this war, and they need not take to heart the unjust aspersions of irresponsible and prejudiced critics.

A REMEDY FOR BEDBUGS.—We are told (*Zeitschrift fur Krankenpflege*) that acetic acid injected by means of a glass syringe into all the cracks and crannies is an excellent remedy against these troublesome pests, as a drop of acetic acid infallibly kills a whole nest of them.

HYGIENE OF GRANULAR CONJUNCTIVITIS: WITH SPECIAL REFERENCE TO THE UNITED STATES MILITARY SERVICE.[1]

By FRANCIS DOWLING, M.D.
Member of the Society of Hygiene of France; Member of the American Medical Association, Etc.

The great rôle which granular conjunctivitis plays in the causation of blindness renders its successful management one of the great desiderati of our day. Granular conjunctivitis is a disease that is not confined to any country, but may be found, like poverty, in all quarters of the globe. Its great hotbeds are in some of the countries of the Orient, and here its ravages are great, probably owing to the intense heat and glare of the sun, together with the whirlwinds of sand that are almost constantly in operation in some of these eastern sections, and to these may be added the sudden changes of temperature that take place in these countries between day and night, and the consequent humidity of the night air. In continental Europe the disease occurs in a much milder form than in the countries of the Orient, and its ravages are not nearly so great.

The malady attacks particularly the poorer classes, and the rich and well-fed are comparatively free from the disease.

Certain races are particularly liable to the disease, as the Irish and the Jews. These latter are said to carry it with them all over the world, and transmit the liability to their descendants wherever they live. The disease is more frequent in persons between the ages of fifteen and forty-five years. In children under six years it is quite rare, and the same may be said of people over fifty.

The atmospheric condition exerts an influence on the causation of the disease. It does not become epidemic at a height of over 250 meters above the sea level, and it loses its contagious character at this height. Low regions and swamps favor its spread.

The disease is highly contagious. So destructive is it to the sight that it will be safe to say that three-fifths of the blindness throughout the world is directly or indirectly due to this disease. Zehnder states that in Finland, in the year 1886, the proportion of the blind was 1 to 348 of the population, and the principal cause was granulated lids. Haynes Walton says that granular conjunctivitis is the most common cause of blindness in Ireland. According to a recent report published in the Transactions of the American Ophthalmological Society, 8 per cent. of the blind in the State of New York owe their condition to this disease.

When once this affection has secured a good foothold the patient is more or less seriously crippled for life.

This disease was known in Italy during the days of the Roman Empire. This is proven by a passage in Celsus, giving a full description of the malady.

The beginning of the nineteenth century brought with it a considerable spread of the disease, covering a large section of Europe, probably owing to the long wars which brought the armies of the continent in frequent contact with one another and with the civil population. The disease ravaged one country after another in the form of epidemics. The spread of this disease is favored by the dwelling together of many persons, as in barracks, on shipboard, etc., whereby the communication of the contagion from one person to another is facilitated. This communication is, as a rule, effected by the common use of such articles as towels, sponges, washing water, etc., from one or more who may have the disease, causing it to spread to others who may be healthy. At Mayence, in 1819, an epidemic of the disease broke out, and one-third of the Prussian army were attacked by it.

---

[1] Read before the Academy of Medicine of Cincinnati, May 2, 1898.

Contamination of the air through defective ventilation favors the spread of this disease. Mueller says that there is no danger in remaining a whole day in a ward filled with patients afflicted with this disease, but the night ought not to be spent in such a situation. He believes that the defective ventilation at night increases the infectious quality of air. In schools where there are boarders, those who sleep in the institutions are more liable to contract the disease than the day scholars.

The first account we have of this disease appearing among soldiers dates from Napoleon's Egyptian expedition. At that time, 32,000 men, nearly his whole army, were affected by it, as were also the British troops who were in Egypt at that time. During the twenty years following the disease spread through almost all European armies. In the British army, in 1818, there were more than 5,000 blind invalids as a consequence of this disease. In the Prussian army, from 1813 to 1817, between 20,000 and 25,000 men were attacked, of whom 150 lost both, and 250 only one eye. In the Russian army, between 1816 and 1839, 76,000 men were affected; of these 876 lost one eye and 654 lost both eyes. In Italy 1,500 soldiers were attacked with the disease. In the Belgium army, in 1840, one out of every five soldiers had the disease, and up to 1834, 10,000 soldiers had lost one eye at least. In 1849 the disease first appeared in Portugal, and in eight years 10,000 soldiers were afflicted with it. In 1848 the disease visited Denmark, and in Copenhagen, out of some 6,000 soldiers, 1,000 were affected.

As in the army, so also in the navy the disease occurs, and in the navy it has raged with much greater severity than in the army. In 1875, in the Austrian navy, about every sixth man had the disease.

In almost all countries where the disease is prevalent to any great extent there exist special regulations relating to the trouble among the military classes. The most thorough and best of these are to be found in Belgium, among whose soldiers the disease is most prevalent.

Prophylaxis.

In the first place the army and navy surgeons should have a thorough knowledge of the disease, and not only a theoretical knowledge, but a practical one in relation to its treatment, its hygiene, etc.

Recruits who may be affected with this disease should be rejected on making application for entrance into our army and navy, even when the trouble is present only in light form, for they are at any time, owing to overcrowding, atmospheric conditions, etc., liable to develop into severe forms. In the German army recruits affected with this trouble are rejected. In the Belgium army they are accepted, providing the disease is not of a serious type.

It is essential to prevent overcrowding in barracks. Twenty-five cubic meters of air space ought to be allowed to each man, and provisions should be made for good ventilation. Every barrack's ward ought to be cleared out for a week or so at a time, at least once a year, so that they may be thoroughly ventilated and whitewashed. For washing purposes each soldier should have his own wash basin and his own towel, or, still better, instead of a basin each one should wash in running water furnished by faucets. In our army the soldiers wash in common, in large troughs.

A regular medical inspection of the soldiers' and sailors' eyes at regular intervals is of great importance, and to do this satisfactorily the eyelids ought to be everted as far back towards the cul-de-sac of the mucous membrane as possible; otherwise hidden granulations will often escape detection.

In Belgium every soldier applying for a furlough is examined, and it is only granted if he is free from this disease. In like manner he is examined on joining his regiment again at the expiration of his leave of absence.

The soldiers who may be affected with granular conjunctivitis ought to be isolated from the healthy ones—that is, placed in separate barracks; and these quarters ought to be thoroughly fumigated once a week with burning sulphur. In this way, and only in this way, in connection with proper treatment, can the disease be stamped out. In an asylum for boys near our city several years ago something over half of the inmates were affected with this disease. I followed this plan of disinfection and isolation, and in consequence in nearly a year the disease was completely eradicated from the institution.

In recruiting all subjects affected in the slightest degree with this disease should be promptly rejected.

Medical inspection of all soldiers should be made every four weeks.

Every one suffering from the disease should be sent to the military or naval hospital and treated until cured.

No soldier or sailor should be dismissed from the army or navy until thoroughly cured, when such a cure is at all possible.

In this way the spread of the disease amongst civilians from the military may be prevented.

Treatment.

The treatment usually recommended for this disease consists in touching the everted lids with one or more of the astringent and caustic applications, in either the solid form or in solutions of various strengths. The most popular of these is the sulphate of copper. Next in order of popularity and usefulness comes the mitigated nitrate of silver, in stick or solution. When used in solid form it should be washed off after being applied, as otherwise by continued use it is apt to leave scars and thus produce puckering of the tarsal mucous membrane. While I was in the late Professor Yaeger's clinic in Vienna, in 1883, the first trial was made there with the infusion of jequirity in the treatment of old cases of this trouble. All the assistants in the clinic thought they had at last found a panacea for this troublesome malady. They were consequently very much elated over a few cases in which, apparently, the remedy did great good. The popularity of the remedy was, however, of short duration, for it was found that the symptoms produced were so severe that in the majority of cases the treatment seemed to do more harm than good, except in some old cases with pannus complications.

Dr. Abadie, of Paris, has reported to the French Academy of Medicine the results of a series of experiments which he has made in the treatment of granular conjunctivitis by means of a 1 to 500 solution of bichloride of mercury. The doctor first anesthetizes the patient by means of chloroform or ether; then the upper lid, for instance, is first everted completely, until the superior cul-de-sac is brought into view; this is accomplished by means of a pair of forceps made especially for this purpose. The granulated membrane is now pretty thoroughly scarified with a small bistoury. The solution of bichloride is next thoroughly rubbed in by means of a stiff brush. The rubbing is kept up until the bleeding has in a measure stopped, and the mucous surface resembles parchment in color. After a while the eyelid is released from the grasp of the forceps and returned to its normal position. The lid is to be afterward touched up, once a day, with the solution, until the granulations are eradicated. This, the doctor says, often occurs in three or four weeks, even in old cases, which, under the old treatment, took as many years to accomplish.

I have as yet had no experience with this mode of treatment, but should it possess all the merits claimed for it by its author it will prove a veritable boon to humanity.

Of the various other remedies which have from time to time been mentioned for the cure of this distressing malady, I will not take up your time with the discussion. Personally, I have had more success in my practice with touching the granulated lids with the solid stick of mitigated silver, and then immediately washing it off, than with any other remedy. This I do twice a week in old cases, and on the intervening days I rub in an ointment composed of atropia sulphate and yellow oxide of mercury. I also am particular to correct any trouble of refraction that may exist. This latter is very necessary, for the reason that if any error of refraction complicates the case, and be not attended to, the granular condition will persist under all sorts of treatment.

In addition to the local treatment, I invariably give some general treatment in the shape of tonics and alteratives. I am fully convinced that in a moderately well-advanced case of this disease we will rarely succeed in effecting a cure by local treatment alone, for the reason that, underlying the local eye trouble, there is generally a perverted condition of the general nutrition, and this in itself is one of the potent factors in keeping up the local disease of the eyes. I know I have been more successful with this combined treatment than with the local treatment alone.

CLIMATE AND MALARIA.*

By SURGEON-MAJOR R. R. H. MOORE, M.D., A.M.S.,
Jalapahar, Darjeeling.

It is well known that forests have the power of conserving the moisture of a district, and that the soil under trees is always damper than the soil of open spaces.

This leads us to the consideration of another set of important phenomena.

When woods are cut down upon a large scale, the excess of moisture accumulated by their presence is released, the cause which preserved it in that particular spot is removed, what happens? What are the immediate and ultimate results?

The immediate result is that a large surface is suddenly laid bare, containing a larger amount of water than it can dispose of, and larger than a bare space of land under the same circumstances could contain: in other words, the deforested land is in the first instance a swamp.

In time of course this rights itself; the excess of moisture is removed, either by sub-soil drainage or evaporation, and the land gradually assumes the characters of neighboring bare places, and becomes as dry as if it had never been covered by trees.

What more natural than that an outbreak of malaria should mark the period of deforesting, and that this should gradually subside and a healthy condition be restored?

This is the natural sequence of events, and this is the simple explanation of those numerous and extensive epidemics of malaria which have so often been reported in the United States, when trees were removed from the whole face of the country.

This however is a matter which has never received the attention it deserved, and which has never been carefully or scientifically investigated; so much so indeed that, as far as I am aware, this explanation, simple and obvious as it appears to be, has never previously been even suggested.

The idea is undoubtedly held by many that in malarious countries, woods are unhealthy. I believe this idea has entirely arisen from the fact of the general dampness of the soil, and of the general association of dampness with malaria.

Tommasi-Crudeli in this connection says: "Woods covering malarious ground may favor the production of malaria by preventing evaporation and preserving moisture in the surface soil." He also says: "If the layer of soil is thin the removal of the wood will help the sun to dry it."

This is of course all theory; for not a single instance is brought forward in support of the notion that when malaria prevails in a forest, the clearing of the trees will remove it.

It is a subject for regret that there is such a scarcity of reliable observations on this point from which to draw deductions, but the reader will have far to search before he finds a well authenticated case of a malarious and thickly wooded district being rendered healthy by the complete clearance of the trees.

---

* *The Indian Medical Record.*

All woods are damp, but all woods are not malarious, therefore something else must be looked for beyond the mere dampness to account for the malaria when it is present; again afforesting must induce dampness of soil, yet we have seen that in Italy it is highly lauded as a prophylactic against malaria.

Beneficent Action of Trees in Prevention of Malaria.

There is, I think, sufficient evidence of the beneficent action of trees in malarious places, in sub-tropical and temperate climates to warrant my putting it forward as a general rule that in such climates trees always antagonize malaria, while their removal has the contrary effect. To assume that such a rule should be without exceptions, would be to assume that this rule must be an exception to all other rules.

Regarding exceptions I may say that I think all cases of malarious woods should be carefully investigated; it by no means follows because a forest is malarious that the removal of the trees in toto will effect a cure. Many other things may have to be considered, and in the absence of exact data the subject is not an easy one to discuss.

Probably the most notorious of malarious forests is the Terai, but there is reason to believe that this region is not nearly so deadly as it is often made out to be.

I have it on the authority of two Darjeeling Civil Surgeons that in the cleared portions of the Darjeeling Terai, Europeans can live without contracting fever.

One of them, Dr. T. Duka, writes: "Those planters who have well built houses to live in, affording due protection particularly at night during sleep against these sudden changes of temperature, are known to keep their health in the Terai, even as well, as almost in any part of the plains of India."

This is another example of what I have several times drawn attention to, namely, the marked way in which malaria avoids a well built house. Dr. Duka continues: "The shanties above mentioned are not only inadequate as domiciles, but they are positively dangerous to live in, considering the climate. The nights in the Terai are, as a rule, very draughty, and there is a great difference at some seasons between the temperature of the day and at night, which in the latter case is still further lowered by the sharp breezes which often sweep through the 'shanties' in every direction from the sides and from the top, as well as from below."

To travelers camping there at night without sufficient protection the Terai is very deadly.

Another curious point about this district is mentioned also by Dr. Duka. He says: "In the sanitary report furnished by my predecessor for 1868, it is stated that Europeans living in malarious places (tea plantations at a low elevation are meant) never get fever except when visiting Darjeeling."

Dr. Seale, of Darjeeling, who has had an extensive personal experience, both of the Terai and of Darjeeling, bears witness to the truth of this statement, though not inclined to put it quite so strongly.

Cases like this are frequently put forward as proof of an incubation stage; that they prove nothing of the kind appears to me too obvious to admit of discussion.

They only prove the paradox that people can contract malarial fever where it is generally admitted that there is no malaria.

Given the fact that Europeans can live with impunity in the cleared portions of the Terai when well housed, would we be justified in advocating the clearing of the whole of the district?

By no means, for the fact that people can live in health under such circumstances is no proof that the malaria has been banished, on the contrary we have unmistakable evidence that it is not banished, for those living in "shanties" suffer in an excessive degree. What is the explanation of this apparent contradiction? It is only the question of exposure, which I have already dealt with in this journal for 16th March, 1898.

It is difficult, if not impossible, to believe that a poison diffused in the atmosphere, and capable of being carried from place to place by the wind, or by any other agency, could make such distinctions.

It is evident that malaria is not exterminated by these clearings, therefore there is no reason to believe that clearing the whole Terai would drive it away. In my opinion it would, on the other hand, make matters much worse.

The climate of the Terai presents important peculiarities whose full value must be carefully weighed. They are due to its situation, to the towering range of the Himalayas, which spring from its northern boundary.

We read that "the nights in the Terai are very draughty," and subject to "sharp breezes;" the cause of these cold currents of air is to be found in the situation, and they depend upon certain physical laws which have a large bearing on climate.

I have mentioned that the effect of nocturnal radiation is to cool and raise the specific gravity of the air in contact with the earth. What is the result?

To quote from the Encyclopædia Britannica: "Valleys surrounded by hills and high grounds not only retain their own cold of radiation, but also serve as reservoirs for the cold, heavy air which passes down upon them from the neighboring heights; along low-lying situations, in the valleys of the Tweed and other great rivers of Great Britain, Laurels, Araucarias and other trees and shrubs were destroyed during the great frost of Christmas, 1860, when the same species growing on relatively higher ground escaped."

"Hence mist is often formed in low land, while slight eminences are clear."

Malaria in Mountainous Countries.

Respecting a mountainous country, the experiments made in Switzerland are of special value. "In Switzerland it is observed in calm weather in winter, when the ground becomes colder than the air above it, that systems of descending currents of air set in over the whole face of the country. The direction and force of these descending currents follow the irregularities of the surface, and like currents of water they tend to converge and unite in the valleys and gorges, down which they flow like rivers in their beds; on such occasions the temperature of the tops of mountains and high ground is relatively high. In rising above the current of cold air in a valley the increase of temperature is readily felt."

In the Terai these conditions must, as a rule, be much accentuated; the great difference between the temperature of the Terai and of the lofty mountains increasing the force with which the cold air from the latter rushes down the ravines at night, "causing the icy blasts so often experienced at the mouths of ravines and gorges."

Trees break up, and shelter from these cold currents, to remove them under such circumstances would be to alter the climate in such a way that it would be much worse than before.

There appears to be absolutely no evidence to convict trees of playing any part in the dissemination of malaria.

Effect of Shrubbery.

Some people are greatly prejudiced against the presence of trees or shrubs in close proximity to dwellings. Dr. Meredith, who interested himself particularly in this subject, and who had extensive experience in British Guiana and in Assam, says as follows: "I consider shrubberies, bushes, plants with the character of trees, but growing only from 2 to 3 feet to 10 to 12 feet in height, healthy, and in moderation desirable about dwellings. One noteworthy instance of the advantage of a well-kept garden I may," he says, "mention—that of a merchant in George Town (British Guiana). He had taken great pains to drain what in India could be called his compound, and having drained it, he laid the ground out with a profusion of shrubs and bushes of various sizes and descriptions. It was attended with marked improvement in the healthiness of the place. Instead therefore," he concludes, "of taking it as an axiom that brushwood is almost always bad, I am decidedly of opinion, all other matters being regular, that the reverse is the case."

Significant as these remarks are, they conceal a fallacy due to the general looseness of language in which many writers on malaria rejoice. "Brushwood" has been condemned as malarious time out of mind by an uninterrupted chorus of authors, but none of them have paused to tell us exactly what he meant by "brushwood." The word, as it stands, has no definite meaning at all; in fact may mean a bundle of branches cut off from a tree. Why then has it been passed on and re-echoed from one to another, unless we are to conclude that the vagueness of language is the result of vagueness of ideas?

That Dr. Meredith should suppose the term is applicable to well-kept shrubs in a carefully laid out garden shows that some definition is necessary.

How then is the distinction to be drawn, to show that all observers may be in the right, and not contradicting one another?

We frequently hear of healthy and unhealthy vegetation, but what meanings do the terms imply?

The nature of the vegetation depends for the most part (leaving climate considerations aside) on the nature of the soil; healthy vegetation will spring from a healthy soil and unhealthy from an unhealthy soil. A healthy soil is a well drained soil, and vice versa.

The vegetation of a swamp is unhealthy; the rank undergrowth of many forests is unhealthy; rank undergrowth, well marked in the Terai, is associated with excessive dampness of the soil; it is this extreme degree of moisture which is the cause of the unhealthiness, and the undergrowth probably tends to check it more than anything else.

Wherever in subtropical climates there is a large amount of moisture there is certain to be a luxuriant vegetation. Luxuriant vegetation is an index to damp soil, and a damp soil is unhealthy.

The removal of "brushwood" has frequently, and especially in connection with the laying out of camps, been accused of producing malaria. Well, it is hardly fair, when one gets malarial fever from lying on a damp soil, to put it down to the credit of the vegetation that was removed to make a space to lie down in; for in these cases two things are fairly evident, first that the ground occupied by such growth was damp, second that no one would have taken the trouble to remove it, had the ground not been wanted for the men to camp on.

Ravines.

In malarious countries ravines and punch-bowl valleys have long enjoyed an unenviable notoriety for being extremely malarious; in these places the air movements are identical with the movements already described as taking place in Switzerland and in the Terai. At the bottom of such valleys there is a broiling sun all day, succeeded at nightfall by a downpour of cold air from above, and cold gusts of wind in the ravines.

I allude to this matter here in connection with the enormous extent to which our troops suffer from malarial fever when engaged in active service in the hills on our Indian frontier.

In the recent Tochi Expedition, I have it on the best authority that malarial fevers accounted for almost the whole of the enormous sickness, and actually disabled a whole regiment.

In the Chitral Relief Force, in 1895, the admission rate for intermittent fever among European troops was 513.4. Though this figure falls much below the average of several Indian stations, especially those in the Punjab, it has still to be taken into consideration that the troops in active service are all picked men.

An admission rate of 513.4 is very high for such a body of men from which all those debilitated or sickly have been removed.

It is not known that the natives of these hills suffer extensively from malarial fevers, nor can it be maintained that the conditions usually associated with malaria prevail more in these hills than in the Presidencies of Madras and Bombay.

On the supposition then of a specific poison the explanation of this great amount of malarial fever among our troops is still wanting.

On the other hand, it is easily seen that the men must be greatly exposed to extreme vicissitudes of temperature from the causes above stated.

In these campaigns, our troops are of necessity almost invariably obliged to camp in the bottoms of ravines, in which the cold at night as well as the heat during the day are in excess of what they are at higher elevations. To accentuate this, such situations are liable to be much damper than higher ground. As slightly confirmatory of the phenomenon of cold air flowing down from higher levels and settling in the beds of ravines, I may refer to the third of the series of thermometric observations I made at Darjeeling.

The figures are as follows in twenty-seven observations: The mean minimum temperature at night was 31.1° F. at the bottom of a small ravine 300 feet below the summit of the hill. On an open place on the summit the mean minimum was 30.1° F., while in a small grove of trees it was as high as 34.3° F.

This shows that it was much colder at night in this ravine than it was in the trees on the summit, though the elevation was 300 feet less, while the open space on the summit was only 1° F. colder on the average.

As the ravine ran east and west and was in shade most of the day, the maximum temperatures are of no value. The rule, however, is that places on the side of a hill below the summit have a greater diurnal range of temperature than the summit. Blandford says: "Even at one and the same station, houses on the crest of a ridge have a smaller diurnal range of temperature than those on the lateral slopes. Thus at Darjeeling the present observatory, which is on the crest of the ridge, shows a difference of night and day temperatures about 2° F. less than the old observatory, which for many years existed lower down (500 feet) on the side of the same hill, and this notwithstanding that the new observatory is more exposed than the abandoned site."

That these cold currents flowing down from higher to lower elevations and collecting in valleys, low lying grounds and ravines have an injurious effect upon health, especially on the health of soldiers exhausted and overheated after a long day's march under a hot sun, cannot be doubted; and from the view of the sanitarian, they deserve much more attention than has ever yet been paid to them.

It requires no great strain on our reasoning faculties to conclude that some connection exists between the phenomena I have just been discussing and the undisputed fact that the malarial poison reigns chiefly at night, and we may turn aside for a minute to consider the explanations that have been given to account for this peculiarity.

One set of authors maintained that the malarial poison was drawn up by the heat of the sun; that during the day it hovered about at some unknown elevation, and when night came it swooped down, as Armand humorously says, "like a flock of wild fowl to seek the marsh."

The difficulties in the way of accepting this idea were so great—and I will not now waste time in discussing them—that it had to be given up.

There is, however, one point in it which is deserving of attention. The evaporating power of a tropical or subtropical sun is enormous, and under its influence a considerable weight of water is drawn up from the soil into the atmosphere; if the germ or poison is in the soil, how is it that it has the power to resist this immense force? On the other hand, if the poison were the result of putrifactive changes, is it not during the day, under the action of a powerful sun, that it should be most in evidence?

Undoubtedly it would have been more convenient for these theorists if malaria had been most redoubtable while the sun was up, but this was too obviously not the case, so some other theory had to be found.

It was the custom in the Roman Campagna for farmsteads to be built in the form of a courtyard, with all the doors and windows opening inwards, and with the exception of one door for entrance and exit, nothing but a bare wall on the outer face; now the man who let his imagination so outrun itself as to declare to the world that this form of construction was undertaken to keep out malaria, which of course could not get over the wall, rather than as a means of security to the inhabitants and their flocks, was evidently predestined for this desperate attempt.

Tommasi-Crudeli accordingly, not to belie his character, advanced the astounding doctrine that owing to the variations in temperature which occur at sunset, ascending currents are formed which carry the malarial germ out of the soil and disperse it in the lower strata of the atmosphere. Such was his theory, and this theory, strange as it may seem, instead of being scouted, buffeted and kicked out of existence as it should have been almost before it had time to breathe, was listened to with respect in the civilized capitals of the world, and reproduced as a solution of the whole matter by one author after another.

But what these wonderful ascending currents of Crudeli were no man has ever been able to discover.

The fact is in this idea of Crudeli's the simplest physical laws are ignored or denied.

At sunset the earth cools quicker than the surrounding air; therefore the air in the interestices of the earth cools and contracts, and far from rising has a tendency to sink, while other air from the outside comes in to replace the loss by shrinkage. Further, from the surface of the earth upwards, every succeeding strata is warmer and lighter than the one below it, and all are tending to grow cooler and therefore heavier, yet in spite of all these adverse circumstances, like love that laughs at the locksmith's art, Crudeli's germs that all day long were unmoved by the burning glances of Apollo, start forth at nightfall on the airy wings of imagination, and dance like fairies on the sward.

Such are the theories that have been propounded to account for the nocturnal habits of malaria.

Effect of Cultivating the Land.

There is one other point to be considered here; a great deal of emphasis is laid at the present time on the necessity for cultivation before land can be freed from malaria. I cannot, however, discover the exact idea that lurks in the brains of those who lay so much stress on this point.

The word cultivation is usually paired off with drainage—"drainage cultivation, etc," we read, have made lands healthy. There is some talisman in the word cultivation; it seems to be possessed of some occult powers, but what the powers attributed to it by the writers are I know not. Kelsch and Keiner say: "Marshes that have been dried or filled up, and lands that have been drained only, become really healthy when the soil is subsequently exhausted by continuous cultivation. So essential is this, that it ought to be as much enforced by law upon owners of land, as the proper maintenance and care of salt marshes are upon the companies who work them."

According to this the proprietor of land is to be forced to exhaust it, a pleasant prospect truly, and one to which we can easily imagine he would not readily submit; but we are given to understand that if he does not exhaust it, it cannot be healthy, truly a pretty dilemma for the landed proprietor.

Further we are given no clew to the kind of cultivation, and it is somewhat of an embracing term; for instance, would rice cultivation be likely to be beneficial, or irrigated meadows? The state of the cultivation, in my opinion, may be simply taken as an index of the state of the soil; crops as a rule do not thrive in a marsh, and when we see a good crop of wheat or potatoes, we are justified in the conclusion that the soil is a dry one. Furthermore, good grass land is generally healthy, yet it cannot properly be called cultivated land.

Beyond this I cannot imagine what else authors who held such general views as Kelsch and Keiner, can see in cultivation. Marshy and is drained. By this process it is made available for cultivation, and is cultivated accordingly, and becomes healthy, but it is the drainage which rendered the land fit for cultivation which also made it healthy. Are there any instances of land well drained being left uncultivated with the result that they still continued malarious? On the other hand, however, land covered by vegetation does influence the local climate, the influence being of the same kind that is exercised by forests, but less in degree, according to the nature of the vegetation.

"The essential difference between the climates of two countries, the one covered with vegetation and the other not, lies in this: that the heat of the day is more equally distributed over the twenty-four hours in the former case and therefore less intense during the warmest part of the day." Such is the climatic difference to which, of course, these authors would not attach the least importance, and it is brought about in this way: the vegetation forms a screen as it were between the earth and the sun, reducing the amount of heat the earth takes up by radiation on the one hand during the day and gives off during the night. The cooling process during the day is further aided by evaporation of a certain amount of moisture from the leaves of plants.

Pressure bandage, when suppuration is not too far advanced, by folds of cotton carefully adjusted and a cocoanut-sized wad of tightly compressed cotton placed over the whole and retained by a very tight spica, produced abortion in nine out of twelve suitable cases.—*Gaether.*

SELECTED ARTICLES.

APOMORPHINE AND ITS USES.[1]

By SAMUEL A. VISANSKA, PH.G., M.D.,
Professor of Theory and Practice of Pharmacy, Southern Medical College, Atlanta, Ga.

No doubt many of my readers will be surprised that I undertake to write an article on apomorphine, an alkaloid unknown to many, and rarely ever used by the medical profession. It is for this reason, as well as because of its many beneficial effects upon the human system, that I desire to bring the true merits of this very important drug before the public. Apomorphine hydrochlorate, the preparation in use, is an artificial alkaloid, prepared from either morphine or codeine. Its chemical formula is $C_{17}H_{17}NO_2$, according to the reaction:

$$\underset{\text{Morphine}}{C_{17}H_{19}NO_3} - H_2O = \underset{\text{Apomorphine}}{C_{17}H_{17}NO_2}$$

It should be kept in small, dark amber-colored vials.

The books state that apomorphine is a powerful emetic, nothing more. I shall endeavor to show further usefulness, and that while this compound is derived from morphine it is devoid of narcotic properties. The usual dose as an emetic is gr. $\frac{1}{4}$ by the mouth or $\frac{1}{20}$—$\frac{1}{10}$ hypodermically.

Physiological Effect.

Experiments upon animals have shown the physiological action of apomorphine to be varied, and from them we learn that the drug first excites the cerebral centers and subsequently depresses them; that in poisonous doses it causes convulsions, probably of spinal origin; that it acts as a direct muscle poison in causing paralysis; that it may increase the rapidity and force of the heart's action, and in larger doses cause its depression; that it first increases the rapidity of respiration, and afterward weakens it, death resulting from respiratory paralysis.

In man these symptoms are seldom or never observed, and clinically its most important effects are seen in its actions upon the vomiting-center, upon the circulation, and upon the bronchial secretion. Apomorphine hydrochlorate acts as an emetic by its effects upon the vomiting-center in the medulla only, and this is the case whether given subcutaneously or by the mouth. It is thus entitled to be considered a "systemic" or "centric" emetic.

---

[1] Medical Record.

The superiority of the drug over other emetics lies in its rapidity and certainty of action, in the relative freedom of its action from accompanying nausea and depression, in its unirritating quality if properly and freshly prepared, which renders its hypodermic administration admissible, and in its great efficiency when so given and its very important value when swallowing is impossible. Moreover, if emesis is produced by its subcutaneous administration, the gastric irritation to which other drugs owe their power as emetics is avoided. It will produce vomiting if given by the mouth, but only at the expense of a larger dose and a longer time. Upon the circulation apomorphine hydrochlorate in small or moderate doses usually produces little or no effect; exceptionally, however, after moderate doses, and not rarely if the dose is large, circulatory weakening and embarrassment follow, and caution should be observed in giving it to children and debilitated adults. The size of the dose must be judged by the attendant, who will consider the condition of the heart, respiration, etc.

Uses.

In puerperal convulsions no drug is so highly lauded as apomorphine given subcutaneously. It has almost taken the place of morphine and other narcotics, and its action here depends not upon the emetic power, but on the general relaxation of all the muscles, and I contend that as long as there is relaxation of the system a convulsion cannot take place; therefore the drug should be used when we have a case of threatened puerperal convulsion or if we arrive at the patient's beside during one of these unsightly and distressing attacks. The dose should not be large enough to produce emesis, but just enough thoroughly to relax the system. I generally begin with gr. $\frac{1}{60}$—$\frac{1}{40}$ subcutaneously, and if the desired effect is not produced in thirty minutes the dose is repeated. It is useless for me to go into the further treatment of this symptom, which is so familiar to all. The point which I wish to make clear is the relaxing effect of the drug, if not pushed too far.

In epilepsy a hypodermic of apomorphine will prevent or cut short an attack, according as it is given before or during the fit. It can also be used as an antispasmodic in many other diseases.

In the treatment of tetanus, on the suggestion of Dr. Bomford, of Calcutta, doses of $\frac{1}{10}$—$\frac{1}{4}$ of a grain subcutaneously twice or three times a day were given, and the results were not disappointing. This same physician had a case of hiccough in a man, fifty years of age. He had suffered from it for about six months and the acts numbered thirty to forty a minute. He had been a well-built man, but was reduced to a skeleton. He had tried a lot of native medicines without relief, and Dr. Bomford's predecessor had prescribed for him almost all the drugs of the pharmacopœia, without the slightest good. Dr. Bomford subsequently tried atropine, morphine, by the mouth and subcutaneously, bromide of potassium, camphor, chloroform, emetics, a mustard plaster over the region of the diaphragm, and a host of other measures, without the least good effect. He then gave hypodermically $\frac{1}{4}$ grain of apomorphine dissolved in one hundred and seven parts of water. In less than three minutes the symptoms subsided, and in five minutes more the patient vomited. He was not troubled with the symptoms for two days. On the third day it returned, but was less troublesome. Another $\frac{1}{4}$ grain was given hypodermically, causing vomiting and retching the entire day, but the hiccough never returned.

In bronchial asthma apomorphine affords almost instant relief when the attack has come on and the patient sits at an open window gasping for breath, with a feeling of constriction over the entire chest. It acts in this instance by the relaxing effect, and takes the place of morphine and other narcotics, which are so dreaded because of the habit often acquired. I am yet to hear of the apomorphine habit. Few asthmatic patients go through life without acquiring the morphine habit, and I wish to lay great stress upon the use of apomorphine in this disease.

In catarrhal laryngitis, especially the severe form, the use of apomorphine in small doses will often save the life of the little patient, and it does this by its relaxing-property and also its effect upon the mucous membranes, loosening the secretion and subsequently causing vomiting of the same.

Of all the diseases of childhood croup is one of the most distressing and calls for hasty action by the attending physician, and a hypodermic of apomorphine will do well, either as an abortive or when it is desired to rid the larynx of the thick, tenacious secretion already accumulated, and thus also preventing the operations of intubation and tracheotomy. In these cases a minute dose of apomorphine should be given; say, for a child two to four years of age, 1-100—1-80 grain hypodermically, to be repeated when necessary.

In all forms of bronchitis in which the cough is dry and secretion scanty, apomorphine is an excellent addition to the expectorant mixtures, and especially in pneumonia it takes the place of alkalies to free the secretion.

In cholera morbus a hypodermic of apomorphine will instantly rid the stomach of all irritable and undigested matter, and by giving a few tumblerfuls of hot water the stomach is thoroughly cleansed.

In poisoning of any kind, when we desire to rid the stomach instantly of its contents, nothing can take the place of a hypodermic of apomorphine given subcutaneously.

These are a few instances in which this most valuable alkaloid has given excellent results, and I trust it will be of some benefit to my readers in their practice. It should certainly take the place of all other emetics, and push ipecac, tartar emetic, mustard, etc., to the background. Every day new preparations are being thrown upon the market, and the physicians of to-day are eager to grasp them. The trouble is we are not familiar with the old drugs, for there are enough official preparations now. I think the alkaloid apomorphine has been kept in the hypodermic case, until mouldy, long enough.

APPENDICITIS—A POSSIBLE CAUSE—THE USE OF THE LIGATURE—IS IT NECESSARY ?[1]

By WM. T. OPPENHIMER, M.D.,
President of City Board of Health, Richmond, Va.

The subject for the evening's discussion, as announced in the notices, was appendicitis. I do not wish to take in such a vast subject, only to confine myself to the cause, the results of inflammation and certain procedures for relief. I have often been twitted for pressing the theory that so many diseases were due to the accumulation of gas in the intestinal canal. Possibly 50 per cent. of all cases of sickness is due to some irregularity, imprudence or defect in digestion. The question is asked, "Why do we hear more of appendicitis now than formerly?" I would answer that the disease was not so well known, and that possibly as much existed then as now, but under different names, e. g., many cases formerly diagnosed as peritonitis were fulminant appendicitis. But, nevertheless, I claim the disease is more frequent now. Possibly the cause may lie in improper food. Bread is the most common food, and the common baking powder used has caused more and different varieties of indigestion than formerly, probably affecting the digestive juices. I bring this out, although I have no statistics to prove it, for I believe that appendicitis is nothing more than indigestion in the appendix. Authorities on the subject refer to the blood vessels, sex, etc., when naming the causes. The point I wish to make is that it is the result always of an accumulation of gas, never of plugging of the artery or sloughing. I believe that the capillaries are so numerous that even with blocking of the artery collateral circulation is soon established.

In every case of appendicitis the patient is more or less dyspeptic. It may even be his first attack. The resulting gas accumulating in the cæcum, the appendix becomes blown up and its orifice is blocked. In recurrent cases, the orifice may be more and more narrowed with each succeeding attack, until it is finally occluded, the circulation is cut off entirely if the distance is great, and sloughing results.

In forcing gas into the cæcum, the appendix is more distended at its apex than elsewhere, and least at its orifice, because of the presence of circular muscular fibers. Constant pumping in of gas may result in partial closure only, and adhesions may form; but when there is complete closure, the fulminant variety is produced, and, going on, protective abscesses. This statement regarding closure in the fulminating form must be so, because where the appendix is filled with pus, if it were not entirely sealed there would be drainage into the cæcum, and it would be recurrent. To attest my belief in it, I have performed appendicitis without using the ligature. Of course, in the recurrent form, where the operation is done between the attacks, the ligature should always be applied. The danger from it is that it might not be applied near enough to the cæcum, leaving pus which may result in septicæmia, peritonitis, etc.

---

[1] Read before the Richmond Academy of Medicine and Surgery, May 24, 1898.

In safe hands, the operation is less dangerous without than with the ligature.

The points I have stated are altogether different from those heretofore brought forward, and I would like for the gentlemen present to think of them.

Why do more men than women suffer from appendicitis? The reason given by an authority is that in the latter sex the appendicular circulation is reinforced by a branch from the ovarian artery. I contend that it is because the circular muscular fibers around the orifice of the appendix are stronger in the male, the tension is greater, and, therefore, closure is more likely. I do not deny that the circulation in women may supply more blood.

The points brought out have great bearing on the treatment, namely, food. Indigestion of all forms should have the closest attention, for the first seizure may bring on an attack of appendicitis.

THE EXTERNAL EAR COMPLETELY BITTEN OFF AND SUCCESSFULLY REPLACED.[1]

By WILLIAM J. BROWN, B.A., M.B. Dub., L.R.C.S. Irel.,
Certifying Factory Surgeon.

On March 2, 1898, at about 4:30 p. m., when present at an auction, I was asked to attend to a boy, aged fourteen years, whose ear had been bitten off by a vicious horse. He presented a hideous appearance, the greater portion of the pinna, together with a semi-circular flap of an inch radius from behind the ear having been bitten off, leaving only the tragus with a quarter of an inch each of the helix and lobule. Although the case looked so hopeless (as regards disfigurement) I determined to make an attempt to save the ear, as the patient could be no worse off than he was then if the attempt failed. I asked for the ear and after about ten minutes' search it was brought to me, having been found near the horse in the stable yard. It was of a dirty drab color and the posterior flap was curled up in a roll. I had no instruments or dressings with me, and it would have taken half an hour or more to procure them, which delay would have rendered the attempt to preserve the ear useless. I therefore procured some common needles and thread and, after washing the ear in warm water, I proceeded to sew it on by inserting a suture above and another below, followed by three behind and three before. The posterior flap had to be unrolled before I could stitch it and, owing to the needles being straight, there was great difficulty in placing the sutures in the concha and the fossa of the antihelix. I then placed a roll of cotton wool behind the ear to support it, and having wrapped it in cotton wool and covered it with a silk handkerchief, sent the boy home. As soon after as possible I removed as much of the wool as I could without disturbing the wound, and after dusting the surface with iodoform, wrapped the ear in cotton wool and Gamgee tissue. On March 7 I removed the dressings, washed the ear with a warm solution of bichloride of mercury (1 in 1,000), dusted the surface with iodoform, wrapped the ear in iodoform gauze, and packed it round and covered it with cotton wool. On the 10th I renewed the dressings and removed the sutures. On the 14th a small portion of the lobe sloughed away. On the 16th the patient looked rather anæmic and felt weak, so he was given a mixture containing sulphate of quinine and tincture of perchloride of iron. The same treatment was adopted throughout, the dressings being renewed every second or third day until April 7, when they were allowed to remain on until the 12th, when the ear was completely healed. The patient's diet consisted of plain food, together with bovril, beef tea and eggs. He is a healthy, intelligent lad, who has survived several accidents, his body being covered with scars from burns. On one occasion it was necessary to transplant six skin-grafts from the calf of his leg to his thigh to replace skin which had been destroyed by burns.

---

[1] London *Lancet*.

This case, I consider, shows what valuable results may be brought about by antiseptic treatment and making prompt use of whatever comes handy when the proper instruments, etc., are not available.

SYRINGOMYELIA WITH UNUSUAL SYMPTOMS.

Drs. William N. Bullard and John J. Thomas, of Boston, reported at the annual meeting of the American Neurological Association, the case of a boy, previously healthy and of fairly healthy antecedents, who, when three years old, became subject to attacks of headache of much severity, lasting an hour or more; these were soon accompanied by vomiting, and increased in frequency and severity. This condition continued three years, growing gradually worse, and at the end of that time staggering was noticed and a severe double optic neuritis occurred, which soon produced double optic atrophy and nearly total blindness. The headaches, vomiting attacks, and blindness continued much the same for nearly two years—the remainder of the patient's life. At times the pain and prostration were such that he was in bed for days or weeks at a time; then he would improve, and would be able to be up and about like a healthy child. During this time there was great increase in the general adipose tissue, so that the patient became obese, and to this condition were added later exophthalmos and an appearance suggesting myxœdema. These two symptoms, however, disappeared after a month or two. During the first part of this time (in March, 1895) there was temporary paresis of both external recti and nystagmus. There were no further changes in the symptoms until about ten months after the blindness began, when there was a sudden attack of paraplegia, accompanied by incontinence of urine and fæces, which became permanent. At the same time there appeared a paralysis of the left face and some weakness of the upper extremities, but these soon disappeared. Bedsores developed, but later improved, and the child was in good general condition although the obesity had somewhat diminished at the time of death, the result of typhoid fever.

PROGRESS OF MEDICINE

PROF. KOCH'S VIEWS ON MALARIAL FEVER.

Professor Koch has but recently returned to Berlin, after a prolonged absence in Africa where he has been engaged in the study of rinderpest, and has been the recipient of many attentions. He was met by a party of friends the evening of his arrival in Berlin, was given a banquet during the week, and on the invitation of the Deutsche Colonial Gesellshaft of Berlin, gave an account of his medical observations before an audience, assembled by invitation, that included many of the medical notabilities of Germany. Prince Arenberg, the president of the Colonial Society, presided.

Practically the whole of his talk was devoted to the subject of malaria. It had a special appropriateness to the occasion, since it is the existence of malaria in German East Africa that makes the work of colonization so difficult. The subject of Texas fever was also introduced because Koch has found it in East Africa, and it has in its etiology certain probable analogies with malaria which make it interesting. The Texas fever of East Africa Koch does not consider an importation from America. He has been able to ascertain by careful questioning of the older inhabitants that the disease in practically its present form has existed there for generations. In fact, there is no tradition going back to its first appearance, so that it may be considered to have been endemic for 100 years at least. Koch took the occasion thus afforded him to repeat some of Professor Smith's experiments. He had not the time to repeat all of them, but was able to substantiate the extremely interesting observations as to the parasite of the disease, the intracellular pirosoma bigeminum, and its host a parasite of the tick family that infests cattle.

Appreciation of American Pathologist.

The communication of the disease by the ticks to the cattle was the subject of special study, particularly the hereditary form of the disease in the ticks, or at least the possibility for insects of this kind that had never been on animals affected with the fever, nevertheless communicating the disease to cattle. Koch raised several generations of ticks, and then having carried the young to a part of the country where Texas fever was unknown, placed them on healthy animals. Twenty-two days elapsed before any symptoms were noted, and he had about given up hope of any result from his experiments, when the report reached him. He expressed hearty appreciation of the acute scientific observation and patient investigation of the American pathologist, and his words were welcomed with marked signs of approval.

Tropical Malaria.

Malaria in its tropical forms occupied the rest of the evening. He has found that only about ten per cent. of the malaria that occurs in the tropics is at all like ordinary malaria. The quotidian and tertian forms do occur in about the proportion mentioned, but besides these there are two other forms distinctly tropical. At the height of the paroxysm in tropical fever, there is a persistence of the highest febrile temperature for some thirty-six hours in marked distinction to the almost immediate fall of the temperature after it has reached its acme, as is always seen in America and Europe. The parasite of the tropical forms is very similar to that of tertian fever, but the plasmodium is smaller in the various stages. The so-called spore forms, which are really fully-formed, minute plasmodia, set free after the breaking up of the rosette forms, are not more than one-third the size of the hematozoic sporulation (?) forms of Italian observers. Partly, perhaps, because of their extremely small size, Koch has never seen them in the blood, but has seen them in the spleen.

The constancy with which certain forms of the parasite occur at certain stages of the disease is remarkable. An examination of a blood specimen, though the patient has never been seen, enabled one to say positively in what stage of the disease he was when the blood was withdrawn. There is especially noticeable a small signet-ring form of tertian fever, and having even more distinctly the crescentic enlargement of the ring opposite the signet. In the tropics this is not more than one-half as large as the tertian signet-ring form, and is always found just after the paroxysm is over.

Malarial Hematuria and Quinine Poisoning.

When quinine is given while the parasite is young and delicate, during what used to be called sporulation, though falsely, the plasmodium being less, not more resistant to external influences at this time, it is not hard to break the disease up. Entirely too much quinine is given in the tropics, however, and without due regard to its specific action, which is not any theoretic antiperiodicity, but is its fatal effect on the plasmodium. One gram (15 1-3 grains) is enough for prophylaxis, and scarcely more is needed to avert a paroxysm during the course of the disease if it is given while the parasites are especially irresistant to its action.

Koch thinks that the *Schwarzwasser fieber* (the black water fever), that is so much dreaded in the topics, the malarial hematuria of the books is really not due to malaria at all, but is a symptom of quinine intoxication. He has never seen it in cases where quinine had not been used, and as an idiosyncrasy for quinine often exists, it is possible for severe toxic symptoms to occur without much of the drug having been taken. Koch has not seen in his tropical experience the remittent form of malaria, and thinks that when there is a febrile temperature between the regular paroxysms of the disease that it is due to some complication.

Role of the Mosquito.

As to the conveyance of the disease, air and water as media of the contagion being absolutely excluded, Koch thinks that the disease is spread by mosquitoes. It exists only where mosquitoes are present. Though very common in the islands along the African coast, there is one of the islands off the German East African coast that is free from it, and mosquitoes are not found on the island. Koch found mosquito nets afforded effectual protection against the disease when wandering over infected belts of territory. The analogies for such a means of contagion are by no means wanting. The filaria sanguinis hominis has the mosquito for an intermediate host, without a doubt. The cachexia, fatal in most animals, and often extremely severe in human beings, that follows the bite of the Tsetze fly, is probably due to the inoculation of some organic infectious material capable of reproduction in the organism, rather than to the injection of simple toxic substances. The study of Texas fever is especially interesting in this regard, as showing the possibility of the power of infection being transmitted from generation to generation in the host. It is possible that the cycle of evolution of the malarial parasite in the mosquito may require several generations for its completion. A direct inoculation from person to person by the mosquito seems improbable. As to the therapy of the disease, quinine is effective, yet malaria has always remained the great enemy of colonization projects in tropical countries. The methods usually suggested for ridding a country of malaria are impracticable or ineffectual. The draining of the swamps would be an immense labor and involve huge expense. The planting of eucalyptus trees is humbug. A method of immunization to the disease would open up the tropics to European civilization.

Immunization and Serum Therapy.

That such a thing is possible Koch firmly believes. Malaria even untreated is in any single attack a self-limited disease, and successive attacks are milder and milder. The negroes on the African coast have an acquired immunity and have only rare, and then slight, attacks of the fever. Those who live on the mountains inland know that when they go down to the coast they will almost inevitably acquire the fever, but that the risk is less on successive expeditions and the fever ever lighter.

Even our present imperfect knowledge of the parasite may be sufficient to enable us to find a method of immunization. Koch had not been able to demonstrate the parasitic cause of the rinderpest, but a practical procedure to secure immunity he thinks he has found. Of rabies almost nothing is known as to its etiology, yet a successful biologic therapeutic method for its treatment has been discovered. The aim of future studies will be in this line, for the object aimed at is one of the most humane, and at the same time utilitarian at present open to scientific study, for the opening up of the tropics will follow the discovery.

The scientific and commercial value of successful investigation here would be far beyond anything that Polar exploration (a German North Polar expedition has just sailed) can promise. Government and colonial interest in the matter must be aroused, and every incentive offered to the pursuance of successful investigation in this line.

MALARIAL AND CINCHONIC AMAUROSIS.

Juan Santos Fernandez has investigated this subject and reports thirty-seven cases observed in Havana, Cuba (*Jour. Eye, Ear and Throat Diseases*, Vol. III, No. 2, 1898). The differential diagnosis between cinchonic and malarial amblyopia can only be made by an examination of the fundus of the eye. Here will always be found either retinal alterations like those observed in patients suffering from malaria or simply ischæmic troubles, as in cases of quinine-intoxication. Of the cases reported there were twenty-seven men and ten women. The two eyes were affected simultaneously in thirty-three, the right eye alone in three cases, and the left eye alone in one case. Optic neuritis was observed in five cases. In ten other cases there were ischæmia of the disk and contraction of the retinal vessels. As to the doses of quinine administered to each patient, it was not possible to determine in all of the cases. Some patients could only say that they had taken large quantities.

Differential diagnosis between these affections is much easier made when the patient is seen in the beginning of the ocular complication. It is very rare that amaurosis due to malaria shows a tendency to remain and become permanent, while quinine-amblyopia, even when it is not permanent, persists for a more or less long time. It is to quinine that the author attributes ischæmia of the disk, the presence of which is often referred to in the cases reported. This ischæmia constitutes the true pathognomonic sign of cinchonal intoxication. The essential characteristic is discoloration of the disk, which is generally only a more or less pronounced pallor, but which can increase consecutively and result in a whitening as decided as atrophy, when it is not always easy under such conditions to make the differential diagnosis. In these doubtful instances, however, it is necessary to depend not only on the examination of the disk; we should very minutely explore the retina and inquire particularly into the patient's antecedents. For example, if nerve-atrophy is accompanied by marked contraction of the retinal vessels, and the ocular trouble has immediately followed the malarial manifestation, which calls for necessary energetic quinine-medication, we can affirm the patient is suffering from quinine-amaurosis. The opthalmoscopic signs are very different in optic neuritis, retinal hæmorrhages, and spots of choroidal atrophy. It seems as a result of the author's observations that infancy is more especially predisposed to neuro-retinal ischæmia. In fact, the writer's statistics show twelve children aged from 1 to 10, which is equivalent to a third of the total number. The author believes that the relative frequency of these manifestations in children is due to quinine being administered to them with the same prodigality as to adults, without regard to the rule of dosage which obtains with children as compared with adults.

There is no need of administering very large doses in order that the visual trouble become manifest in patients who are predisposed and exceptionally susceptible to the symptoms of the alkaloid in question; it is none the less certain that too large doses are more dangerous, and, consequently, it is prudent not to employ them.

As to treatment of cinchonal ischæmia and the amblyopia which is usually the result of it, we cannot depend upon pharmacology, as no appreciable results were obtained from iodide of potash, strychnia, arsenic, or from douches. The best results are to be expected from physiological rest and general ocular hygiene.

DIRECT INTRA-ABDOMINAL FINGER-COMPRESSION OF THE COMMON ILIAC ARTERY DURING AMPUTATION AT THE HIP-JOINT.

McBurney (*Annals of Surgery*) in an article on this subject states that loss of blood during the performance of amputation at the hip-joint is of especial importance because almost all of the cases in whom this operation is indicated belong to one or two classes: (1) those suffering from extensive, often long-continued, disease, and who are therefore feeble and anemic; (2) traumatic cases, weakened by the shock of the traumatism, and usually anemic from considerable blood loss. Therefore, in amputation at the hip-joint every precaution should be taken against hemorrhage and against sepsis.

He states that in the last three of his cases he has adopted a method which is simple and effectual, and all three patients have recovered.

First, as much blood as could be safely returned to the body from the limb to be amputated, by means of position or elastic bandage, was so returned. Then an incision was made through the abdominal wall about one and a half inches internal to the anterior spine of the ilium.

In the last two cases this incision was made by separating the aponeurotic and muscular fibres according to the plan suggested by the author in operating for removal of the appendix in the interval between attacks. This, of course, eliminates the possibility of subsequent hernia. Through this incision an assistant passed his index-finger and readily reached and compressed the common iliac artery.

Entire absence of blood-current beyond the point of compression was readily maintained throughout the amputation which followed. The operative field was entirely free from bandage or appliance of any kind, the opportunity to maintain complete asepsis was therefore free from complication, and the amputation was made without other loss of blood that that which took place from the vessels of the limb below the point of amputation. The author deems the method commendable on account of its simplicity, its certainty, its aseptic character, and because it can be applied to cases which require that the deeper tissues should be severed at an unusually high level.

THERAPEUTIC HINTS.

THE ELECTRICAL TREATMENT OF NEURASTHENIA IN HYSTERICAL PATIENTS.—Apostoli and Planet (*Annales d' Electrobiol.*, May 15, 1898), in a second communication, record four cases of the association of these diseases treated by electricity. They state that these two neuroses are frequently found in association in the same subject, though in different degrees. Neurasthenic patients who are also hysterical often derive great benefit from treatment by static electricity or by franklinisation. The curative process of the static bath is especially exercised upon insomnia, and its effect is marked by the return of normal sleep. Most, but not all, hysterical patients whose condition is improved by static electricity show an intolerance, varying in degree, towards the high frequency currents, and especially towards auto-conduction in the electric cage. Faradisation, which is as a rule indicated as alone serving to produce an effect upon certain local hysterical troubles, especially those of sensibility in one organ or a limited region, is often powerless, while static electricity, which acts in a general manner, may give more rapid and more effectual results. Static electricity can indeed, according to the authors, bring about the disappearance of certain hysterical manifestations, such as convulsive tics complicated with constipation and copræmia. The cutaneous sensibility to the static spark, which is found to be abolished or more or less diminished in hysterical patients who are commencing electrical treatment can be more or less completely restored under the influence of franklinisation alone; this can therefore be used as a supplementary aid in diagnosis. Finally the authors state that static electricity or franklinisation (consisting of a simple bath with electrodes leading off from the vertebral column and the painful points) is the most capable and efficacious electrical means of rendering aid in every respect in the treatment of a certain number of hysterical cases.

THE TREATMENT OF SUPPURATION BY BICARBONATE OF SODA.—Brucker has made a study (*These de Bordeaux*) of a fact observed by him—namely the influence of the reaction of the blood in the healing of certain conditions. Bearing in mind that the normal alkalinity of the blood shows important variations according to sex, age, and as to whether the blood is arterial or venous in origin, and the diet to which the patient has been addicted, so in certain pathological conditions these variations are very marked, and a reduction in the normal alkalinity is observed in certain cases of febrile reaction due to bacterial intoxication. It has been found that certain artificial intoxications can be combated by raising the alkalinity of the blood by the injection of alkaline serum.

Going on these grounds, Brucker has principally investigated the influence of alkaline dressings in the treatment of local inflammatory affections, and, according to his observations, such a dressing, whether moist or dry, very rapidly reduces the inflammation suppurative or otherwise, and causes rapid healing of wounds. This seems independent of any antiseptic property in the proper sense of the word. The method employed by him is to apply the dressing of absorbent wool on ordinary principles, using merely a two-per-cent. solution of bicarbonate of soda, or in some cases vaseline and bicarbonate (1 in 25), or the soda may be applied directly in the form of a powder. He finds that strong solutions do not act more quickly than a two-per-cent., showing that the chief agent is the alkali and not any antiseptic principle. The same method may be applied for purulent otitis, etc.

Drugs Which Should Not be Prescribed in Cachets.—According to Bricemoret (*Nouveaux Remedes*), there is a whole series of medicinal substances which should never be prescribed in cachets. These may be divided into three groups: one of these includes deliquescent substances readily absorbing the moisture of the air; another comprises bodies, the mixture of which gives rise to a compound of fluid consistence; the third group consists of substances which are decomposed by the oxygen of the atmosphere and the products of decomposition of which stain the cachet.

Under the first of these groups are arranged the following:

I. Acid phosphates and their derivatives; the alkaline phospho-glycerates. These salts, prescribed in cachets, would form a fluid paste 24 hours after preparation.

II. Sodium bromid and iodid, which are very deliquescent.

III. Crystallized calcium chlorid.

IV. Strontium chlorid and bromid.

V. Iron ammonio-citrate and ferro-potassic tartrate.

VI. Piperazin and lysidin.

VII. Chloral.

VIII. Dry vegetable extracts and, in general, products prepared by evaporation *in vacuo*. Beside these dry extracts should be placed:

(*a*) Dry peptones prepared by evaporation *in vacuo*.

(*b*) Extracts of animal organs desiccated *in vacuo*.

In the second group must be placed bodies which alone are not subject to change when exposed to the air, but which, mixed, give rise to compounds that take up water very greedily; such is the mixture of antipyrin and sodium salicylate; cachets containing these two substances become deliquescent very rapidly.

To the last group belong the alkaline and ferro-alkaline iodids and the aristols. A device, which is often successful, consists in adding to a mixture which it is feared will prove hygrometric, a certain quantity of licorice-powder or quinin. Care should also be taken to keep the cachets in a wide-mouthed glass bottle closely stoppered.—*Practitioner.*

Depilation.—As is well known, the application of chemical depilatories to the skin for the removal of superfluous hairs is not a very comfortable operation, and may be attended with serious injury to the skin, for these compounds usually contain powerfully caustic components. There are a great many proprietary depilatories, consisting for the most part of sulphides of sodium, potassium, calcium, barium, or even arsenic, but they are not, as a rule, satisfactory. There are Oriental depilatories, Chinese depilatories, Turkish depilatories, all more or less of the same composition. Depilation, indeed, is a very ancient practice. Even the removal of superfluous hairs by means of electrolysis is a long and tedious process, and in reality amounts to the production of corrosive alkali in the follicle. We have (*Lancet*, June 4), we fear, little consolation to offer to several correspondents who have recently written to us upon this subject. They should consult their medical attendants and beware of widely advertised nostrums. One states that he has an abundant growth of hair on his face and neck which he has attempted to remove in consequence of the representations of his employers, who forbid their employés to grow beards. He has a particularly tender and sensitive skin which quite prevents him from employing the razor with that frequency which the rapid growth of the hair would demand. In such a case the only plan is to allow the beard to grow and to convince the employers of the absurdity of their views and the extreme unreasonableness of their request. Dictation of this sort on the part of employers is pure tyranny, and no right-minded person would make such an idiotic insistence. Nevertheless it prevails in a great number of respectable houses of business and the employés are threatened with discharge unless they submit.

ANTIPYRIN ERUPTIONS.—W. Wechselmann (*Deut. Med. Woch.*, May 26, 1898) emphasizes the difficulty sometimes experienced in recognizing the antipyrin rash. It may spread universally over the body or be limited to more or less definite areas. In the latter case the parts about the mouth, anus, eyelids, the extremities, especially the backs and palms of the hands, the fingers and toes are most often affected. When limited in this way it may be attributed to syphilis. The rash consists of raised, well-defined red spots, round or oval in shape, upon which vesicles quickly appear. Healing takes place with a laminated desquamation or crust formation, and pigmentation frequently remains behind. The diagnosis is often made more difficult by the patient denying that it can be due to the use of any drug. The rash frequently does not appear after the first dose, but only after the antipyrin has been taken for some time, so that the patient hardly believes it possible that it is due to the drug. The author gives details of five illustrative cases. He says that the rash is not so often seen as the use or misuse of antipyrin would lead one to expect. The size of the dose has little effect in producing it. The pigmentation is due to the rapid recurrence of the rash in the same part. Perhaps the drug is here excreted by the sweat glands and salivary glands rather than by the kidneys. In some investigations the presence of antipyrin in the urine could not be established.

THE INTERNAL TREATMENT OF PRURITUS.—Pruritus is a symptom of many cutaneous diseases and can ordinarily be relieved by local applications of various kinds, such as those containing carbolic acid, menthol cocaine, etc. In a considerable number of cases, however, the itching is not alleviated by topical measures, and under these circumstances recourse must be had to the internal use of analgesics. According to recent observations salophen ranks as one of the most efficient of anti-pruritics, while it has the advantages of being perfectly safe. In the *Therapeutische Monatshefte* of March Dr. Drews reports five cases of prurigo, seven of urticaria, two of pruritus due to diabetes, four of moist eczema, and three of psoriasis, in all of which the distressing itching was promptly relieved by salophen given in doses of 1.0 Gm. every two hours. Of the cases of prurigo, three were cured in two to three weeks, while in the other two a longer time was required on account of recurrences. In all the cases of urticaria, complete relief was afforded by a few doses, and in one case of pruritus of diabetes the result was equally good. In moist eczema the itching disappeared after one or two days, while in the cases of psoriasis it was alleviated by the internal use of salophen and the eruption favorably influenced by a 10 per cent. ointment of this drug with vaseline and lanoline.

REST: A NEGLECTED FACTOR IN GASTRO-ENTERIC DISEASES.—In a paper on this subject at the recent meeting of the American Medical Association, C. V. Spivak (Denver) protested against the too frequent and general use of lavage, galvanization, and other local mechanical measures in the treatment of gastro-intestinal diseases. His own method was to advise rest in bed in all serious cases, with entire abstinence from food for at least from 1 to 3 days, nutritive enemata being used if longer abstinence was necessary, with poultices over the epigastrium, which gave comfort and acted as a splint for the stomach. He recited histories of cases with hyperchlorhydria, gastric disturbance with pulmonary tuberculosis, membranous eneritis, and other affections in which failure of permanent relief by the usual methods of treatment was followed by entire cure of permanent amelioration of symptoms when the rest cure was employed. He considered this treatment indicated in all neurotic cases, in all cases with pain or diarrhœa, and in almost all tuberculous cases, and he thought it never contraindicated.

VERATRUM VIRIDE IN ECLAMPSIA.—Dr. Sloan recently reported (*Brit. Med. Jour.*, February 19) four cases of eclampsia in which veratrum viride was used. No convulsions had occurred after the first dose of the drug, and the pulse had diminished in frequency and tension. After a study of the cases he had come to the conclusion (1) That veratrum viride was a powerful or a dangerous drug according to the way in which it was used; (2) that it could be relied on, if pure, to reduce the force and frequency of the pulse where these were abnormally high; (3) that it might be of signal service as a preventive of eclampsia in cases where such a calamity threatened; (4) that it was safe to predict that the pulse would fall much lower than it had done fifteen minutes after an injection. He intended in future to allow thirty minutes to pass before repeating the dose, and, as a rule, would give no more than two injections within two hours.

PLANT LIFE AND DWELLING HOUSES.—Dr. A. J. Carbajal, sanitary inspector of the city of Mexico (*Boletin del Consejo Superior de Salubridad,* May 31), points out that plants and flowers should never be left inside the house at night, especially in a bedchamber, for, while during the day they breathe in carbonic acid and exhale oxygen, at night time this function is reversed, not to mention the fact that the odor of plants is apt to cause headaches. Outside the house, gardens with plants growing in the soil instead of in boxes or flowerpots are apt to add to the dampness of the walls, if in close proximity thereto, while large trees growing under similar circumstances have not only that effect, but also impede the circulation of horizontal currents of air and prevent free access of light. For the immediate vicinity of dwelling houses he recommends small shrubs or herbaceous plants, while any larger trees growing within some distance should be kept in check in their growth, so as not to impede free circulation of air and entrance of light.

TINEA SYCOSIS.—A mild soap with warm water is first used to remove the crusts, and this is to be followed by an efficient shampoo with spirits of green soap. The infected surface of the chin and face should then be cleanly shaved, and the oil of sweet almonds thoroughly applied, for the purpose of rendering the skin soft and pliable. If after earnest effort has been made to avoid epilation no improvement has taken place, epilation may be practiced. After removing the oil with warm water and a mild soap—mild potash soap is excellent—an ointment containing one of the parasiticides should be lightly but thoroughly applied. A benzoated oxide-of-zinc ointment, containing salicylic acid, fifteen grains to the ounce, is good; or two drachms of sulphur may be added also. Beta-naphthol, ten grains, with a scruple of sulphur to the ounce of oxide-of-zinc ointment is another formula.—Dr. M. H. Sears, *The Colorado Medical Journal.*

MOTHER'S MILK IN THE COLOSTRUM PERIOD.—The common gastro-intestinal symptoms observed in the nursing infant during the puerperal period are due largely, as a rule, to an excess of proteids in the milk. The matter generally remedies itself when the mother is able to get about and exercise more, until which time it is good practice to dilute the milk by having both mother and child drink an abundance of water. —*Denver Med. Times.*

REST IN NEPHRECTOMY.—The most important thing to do for any patient who is suffering from mild or severe acute inflammation of the kidney is to insist upon absolute rest, the patient remaining in bed not only for the rest, but also in order that the surface of the body may be protected from draughts and colds.—*Therapeutic Gazette.*

MENTHOL COLLODION FOR CONTUSIONS.—The *Journal de Med. de Paris* says this is recommended by Professor Name to soothe pain and accelerate recovery. After rigorous antisepsis and cleansing of the contused parts with ether, they are painted once or twice a day with a mixture of twenty-four to twenty-seven grammes of collodion with six to eight grammes of menthol.

BOOK REVIEWS.

Accident and Injury—Their Relations to Diseases of the Nervous System, by Pearce Bailey, A.M., M.D., Attending Physician to the Department of Correction and to the Almshouse and Incurable Hospitals; Assistant in Neurology, Columbia University; Consulting Neurologist to St. Luke's Hospital, New York City. New York: D. Appleton & Company. 1898.

We are informed by the author that the original purpose in this undertaking was to furnish a systematic description of the nervous affections which result from injury and fright, and which, under the generally familiar term of "the traumatic neuroses," exist independently of any as yet demonstrated lesion in the nervous system. These disorders are of sufficiently common occurrence to constitute a comprehensive chapter in internal medicine, and they have obtained a position of legal prominence from the frequency with which they are associated with questions of liability. Yet, in spite of their importance, that they are not always clearly understood by physicians generally is shown by the contradictory views expressed concerning them when they become the subjects of litigation.

While it cannot be denied that the nature of the traumatic neuroses is still in many respects obscure, sufficient evidence as to their causes and symptoms has now accumulated to permit them to be recognized as definite clinical types, and to be diagnosticated with reasonable accuracy. This evidence is, however, more or less inaccessible to general readers, existing chiefly as scattered monographs, most of which are in foreign languages. No single book has attempted, in recent years, to present in detail the enlarging views, and the deductions from them, concerning these disorders. More than a year ago it appeared to the author that an embodiment of such views and deductions, together with facts of personal experience, might prove of service, not only to practitioners of medicine, but also to those whose interest in the questions involved arise from legal rather than from medical reasons.

This task was accordingly undertaken. As it progressed it became evident that a treatise on the traumatic neuroses would be much more useful were it preceded by some account of injuries to the nervous system of organic character. A disease can only be diagnosticated as functional when evidences of organic lesion are absent, and the physician to recognize the one must be able to exclude the other. Accordingly, instead of proceeding at once to the delineation of neurasthenia, hysteria and allied conditions, the first parts of the volume are concerned with the simpler methods of examination, with the causes and effects of acute organic injuries to the nervous system, and with a consideration of in how far accidents may be held responsible for the appearance of certain chronic degenerative diseases. The question of malingering is so intimately connected with the traumatic functional nervous disorders that its description also was deemed essential. Treatment does not properly fall within the scope of the work as indicated by the title, but since it is a subject of such importance the few words regarding it may be found not out of place.

The result is a work which will undoubtedly prove of value in its special field, a field which, in view of the multiplied risks of injury due to increased travel and the growing use of complicated machinery is spreading rapidly.

Diseases of the Eye, by Edward Nettleship, F.R.C.S., Opthalmic Surgeon at St. Thomas' Hospital, London; Surgeon to the Royal London (Moorfields) Opthalmic Hospital. Revised and edited by W. T. Holmes Spicer, M.A., M.B., F R.C.S., Opthalmic Surgeon to the Metropolitan Hospital and to the Victoria Hospital for Children. Fifth American from the sixth English edition. With a supplement on Color-Blindness by William Thomson, M.D., Emeritus Professor of Ophthalmology in the Jefferson Medical College of Philadelphia. With two colored plates and one hundred and sixty-one illustrations. Lea Brothers & Co., Philadelphia and New York. 1897.

We can not do better in reviewing this work than to commend and endorse the words of the editor himself concerning it. As he truly says: A work which has passed through the press six times in Great Britain and five times in America, can reasonably claim a degree and length of success which can come only from merit. Nettleship fills a peculiar place in the rich literature of ophthalomology, as it compendiously answers the needs of practitioners as well as students, and is so widely used as to render possible a price placing its reading within the command of all.

The favor it has thus found among all English speaking nations has led to still another advantage, namely, frequent revision and consequent fidelity to the rapid progress of ophthalmology. The present edition has had the benefit of thorough revision, not only in England but likewise in America. In certain points the views and practice of American ophthalmologists differ somewhat from those prevailing in Great Britain, and accordingly, bracketed editions will be found in the text wherever necessary to render it a true exposition of American practice.

The section on the Detection of Color Blindness, with which Professor Thomson enriched recent American editions, has been revised by him, rendering the work indispensable to railroad surgeons.

In its new edition the reader of this work will therefore find an epitome of the best ophthalmology of the Old and New Worlds.

Toxic Effects of Camphor.—A 2-year-old child was given by mistake a tablespoonful of camphorated oil (*Sem. Med.*, No. 43, 1897). In half an hour the child got convulsions, then it fell into coma and began to vomit. The pulse was hardly perceptible, the pupils were widely dilated. A hot compress was put over the region of the heart and electricity applied. In about half an hour the child regained consciousness.

FAVORITE PRESCRIPTIONS.

Treatment of Thread Worms.

Dr. A. Monti (*Sem. Med.*) recommends the following:

Senna	3 dr.
Tansy	3 dr.
Water ... to make 80 gme.	2¾ fl. oz.

Boil 15 minutes, then add:

Magnesium sul.	30 to 45 grn.
Syrup Manna	4 fl. dr.

Half to be taken in the evening, the other half the following morning.

Intestinal irrigations are to be daily practiced, and should consist of aqueous solutions of castile soap (about 0.5 gme. [8 grn.] to from 1 to 3 liters [say quarts], according to the age of the child). These injections should be carried out for a week at least, in order to expel the numerous parasites present in the folds of the large intestine. At times it may be necessary to carry out the injections for even two or three weeks.

Phthisical Cough.

Murrell recommends the following in the hacking, irritable cough of phthisis, unattended with much expectoration:

Codeine	gr. iv
Diluted hydrochloric acid	ʒss
Spirits of chloroform	ʒiss
Syrup of lemon	ʒi
Water	ad ʒiv

Make an emulsion. A teaspoonful frequently, when cough is troublesome.

Local Application for Urticaria.

The following local application is recommended in the *Gazette hebdomadaire de médecine et de chirurgie:*

Distilled water	14½	ounces.
Cherry-laurel water	12½	drachms.
Chloral	75	grains.
Cocaine hydrochloride	135	grains.

To Relieve Neuralgia of Phthisical Patients.

Capitan prescribes the following ointment. A very small quantity is lightly applied, and the part covered with some impermeable material and absorbent cotton. The application must be discontinued as soon as the skin becomes even slightly reddened:

R	Guaiacol Methyl salicylatis } aa	gr. lxxx
	Ext. belladonnæ	gr. iiiss
	Ext. opii	gr. iv
	Vaselin Lanolin } aa	℥ss

In very acute cases, menthol (15 grains), antipyrin (30 to 45 grains), or bromid of potassium (80 grains) may be added.

For Hemorrhoids.

Extr. hamamelidis virgin	
Extr. hydrastis canadensis	
Tinct. benzoini comp	āā 16
Tinct. belladonnæ	4
Olei olivæ carbolisati (5 per cent.)	32

Adler (*Jour. de Méd. de Paris*) uses the following local application in the treatment of hemorrhoids.

Expectorant Pills.

The following formulas are given in the *Centralblatt fur gesammter Therapie.*

Terpin hydrate	grn. xlv
Powdered licorice	grn. xv
Ext. of licorice	grn. xxx

M. f. pil. No. XXX. S. Two pills t. i d.

Morphine hydrochlorate	grn. i
Ipecac	grn. iii
Sulphurated antimony	grn. v
Glycyrrhiza	grn. xxiv
Sugar	grn. xxiv

M. f. pil. No. XXX. Two pills t. i. d.

An Antiseborrhœic Hair Wash.

Eichoff (*Deutsch. med. Woch.*) applies the following in cases of seborrhœa.

Chloralis	
Ac. tartarici	āā 18 gr.
Olei ricini	7 gr.
Spiritus vini rect	3 oz.
Essentiæ flor. æth	2 dr.

Ointment for Acne.

According to the *Centralblatt fur die gesammt. Therapie,* von Hebra and Ullman recommend the following:

Subnitrate of bismuth	of each 30 grains.
White precipitate	
Ichthyol	
Purified vaselin	200 grains.

To be applied externally.

For Painful Swelling of the Uterus.

In treating painful swelling of the cervical portion, Lutand (*Jour. de Med. de Paris*) applies the following:

Tannin	ʒi.
Lycopodium	ʒiiss.
Europhen	ʒv.
Pulv. opii. compos	gr. xv.

This is applied through a speculum and secured with a cotton tampon.

GAILLARD'S MEDICAL JOURNAL.

A MONTHLY JOURNAL OF MEDICINE AND SURGERY

Scientia et Veritas Sine Timore.

PUBLISHED BY THE NEW YORK MEDICAL PUBLISHING CO.,
106 William Street, NEW YORK.

All communications, of either business or editorial character, should be addressed to Gaillard's Medical Journal, 106 William St., New York.

Articles for publication will be received with the understanding that they are contributed exclusively to this journal. Reprints will be furnished at actual cost, orders for which should accompany the manuscript. Authors of accepted articles may receive twelve copies of the issue in which they are published. Necessary illustrations will be furnished without expense to authors when suitable drawings or photographs are furnished.

REORGANIZATION NEEDED IN THE ARMY.

SINCE the capture of Santiago and the inauguration of peace negotiations, the public press has been filled with assaults upon every person in authority and every branch of the service for the criminal negligence displayed in the failure to have at hand sufficient medical attendance and supplies for the troops advancing on Santiago. The evidence indicates that the medical department had sent ample medical supplies with the transports to Siboney, but that these supplies were not landed for lack of facilities. This portion of the blame is therefore shifted from the shoulders of the medical department to that of the quartermaster. There were (it is stated) but sixty surgeons for the whole of the army corps. This number is exactly correct for a division and is just one-third that required for a full army corps. Since the troops were started from Santiago to Montauk Point where they are to recuperate, one of the division hospital trains of the Fifth Corps sailed from Savannah, six weeks after the troops to which it was supposedly attached had gotten through their fighting. This again is not the fault of the medical department, but of the quartermaster who failed to furnish transportation, and of General Shafter who allowed the train to remain behind.

These and in fact all the greater faults which have been developed prove the necessity of reorganization in two departments of our army. First there is needed a general staff modeled on that of the German army. The need for such a staff is infinitely greater with us than it is with any country which maintains a large standing army. The object of the general staff is, practically, to secure coördination of the different branches of the service. Where a majority of the troops are untrained volunteers, the work of the general staff would prove simply invaluable. With a properly organized and trained general staff, the work of each department is facilitated and the work of all so coördinated as to insure the best results for the energy expended.

The other great need is the reorganization of the medical department on a basis which will leave it free and independent of any and all other departments of the service. This department should contain within itself, its own quartermaster's and commissary department, and should have absolute and undivided control of its own supplies and means of transportation. Under the present system the medical department is unable to secure the services of a single pack mule, or of a rowboat, save through the general quartermaster's department. While lying off Siboney, the medical department was two days in securing the use of a single rowboat in which to land additional stores from the transports, and when they landed they could only secure a single six-mule team for their transport and even this was soon taken for service with "the line." If the medical department were rendered entirely independent, such a state of affairs could not possibly exist. No medical officer would then embark his corps until he had made ample provisions for transportation on debarking, and instead of a divided responsibility such as we now have, we would have an undivided responsibility which if it did not prevent the recurrence of such scandalous conditions as prevailed before Santiago, would at all events so place the blame as to lead to a prompt court-martial.

THE COUNTRY DOCTOR.

THE choice of the location in which he is to settle down for his life-work is not infrequently predetermined for the young graduate in medicine by circumstances over which he has no control. The family influence in his old home, an opportunity to succeed in practice a father or uncle or some such consideration may practically determine the question of location long before graduation, and may even have been the chief factor in causing the selection of medicine as a vocation. Where no such conditions exist, however, where the newly-fledged graduate has no ties which bind him to any particular locality and has the world to choose from, he is frequently led to take up his residence in the city largely on account of college associations and without sufficiently careful consideration of the task before him. While the great prizes are won in the city, great obstacles must be overcome to win them, and many of the leaders in metropolitan practice laid the foundations of their success while country doctors. It is true that the young physician who is attached to a city hospital sees a larger number and variety of cases than he would see during the first years of practice in the country, and for that reason a year of post-graduate study or a hospital appointment for the first year after graduation is a most desirable thing. After this year of hospital work, the young graduate of only moderate means will find his best opening in a country town. Judgment is of course required in selecting a town where the profession is not particularly crowded with young and well informed physicians.

Having made a judicious selection, the young physician will, if he be gifted with a fair degree of tact, be surprised to find how rapidly his practice grows. To the young man of limited means this feature is one of almost paramount importance, and he will find himself at the end of five years of country practice very much better off financially than he could have hoped to be had he remained in the city. His character will also have developed more, and he will have become much more self-reliant than he would have been had he remained in the city. He will probably have seen as wide a variety of, if not as many, cases as he would have seen had he remained in the city, save under unusually favorable conditions.

As pointed out in the address delivered by the President of the Medical and Chirurgical Faculty of Maryland, on the occasion of its one hundredth annual session, the young physician entering upon country practise is launched into a field where he may be called upon any moment to administer to every form of disease. As stated by Dr. Ellis: "It is in the precipitate and constant exercise of his faculties in the contemplation of these problems and their various solutions, unaided, and with great paucity of literature, that his training proceeds, and his success or failure depends not only on his educational equipment, which is too often inadequate, but quite as much upon his mental and moral fiber. If he is honest with himself, conscientious and diligent, his development is rapid and mainly through the cultivation of habits of self-reliance which his surroundings do so much to engender and encourage. And it is this habit of self-reliance that goes so far to mould, to mar his character. A capable man grows in strength and adaptability. In a less capable man, if he is not confessedly and conspicuously beaten, there is frequently the growth of a provincial egotism and a self-sufficiency that is as discouraging to further growth as it is deforming to his personality."

Dr. Ellis depicts the various dangers which surround the country practitioner, and which are all the greater in proportion to the rapidity with which he attains success in building up a practice. But if the country physician will avoid professional jealousies, will co-operate in the organization and maintenance of the County Medical Society and will devote as much time to study as he would have done had he remained in the city, he will find his progress continuous, his surroundings growing constantly more agreeable, and, instead of being a mere nonentity among the crowd of city practitioners, he will develop into a power for good, both in and out of his profession, and will never have cause to regret his selection of the lot of a country doctor.

THAT bismuth is of great value in the treatment of a large variety of affections of the stomach is well known, but its utility in the treatment of gastric ulcers has recently been proven far greater than we have heretofore believed to be possible. The results reported by Prof. Dreschfeld, of Manchester, England, indicate that where heroic doses are administered, bismuth is a most valuable remedy for this very annoying disease. He has pointed out the inconveniences and dangers of using the stomach tube in cases of gastric ulcer, and states that he obtained excellent results by giving large doses of bismuth by the mouth in cases where ordinary doses had not proved successful. Doses of 30 to 40, or even 50, grains of bismuth subnitrate were given three times a day suspended in water. Under these pain was rapidly relieved, vomiting ceased, digestion improved, allowing light nitrogenous foods, such as fish or fowl, to be given, and the ulcer quickly healed. In acid dyspepsia it rapidly relieved the symptoms. In neurasthenic conditions with symptoms resembling those of gastric ulcer it had also been of great service. Two cases of gastric ulcer, which were not relieved by large doses of bismuth given by the mouth, were cured by injecting the bismuth into the stomach after lavage.

One of the last acts of the outgoing Congress was the enactment of a law establishing a hospital corps in the Navy headed by twenty-five pharmacists with the rank of warrant officers. This step is one which meets with universal commendation and should be followed by a similar law affecting the army. It is true that the hospital corps in the army is theoretically on a better basis than was the corps in the Navy prior to the enactment of this law, but practically the organization of the corps in its lower departments is by no means satisfactory. The service would be facilitated and materially improved by placing all the pharmaceutical work in the hands of a corps known as a pharmaceutical corps, with commissioned officers at its head, but operating under the direction of the medical department.

GAILLARD'S MEDICAL JOURNAL.

VOL. LXIX. NEW YORK, OCTOBER, 1898. No. 4.

THE USE AND ABUSE OF MIDWIFERY FORCEPS.[1]

B.—R. MILNE MURRAY, M.A., M.B., F.R.C.P.Edin.,
Lecturer on Midwifery and Diseases of Women, Edinburgh School of Medicine,
Assistant Physician, Royal Maternity Hospital.

Surgical Midwifery.

I think I am right in stating that the selection of this subject for discussion arose out of the able and trenchant address delivered by the former President of this Section at the Montreal meeting last year. In that address Dr. Sinclair drew attention to what he considered the close relation between many gynæcological troubles and the over-frequent and injudicious use of the forceps.

The address contained much to give the reader pause, but its general tenor may be gathered from a brief quotation from it which I venture to make: "Midwifery has during the same period," says Dr. Sinclair, "become also largely surgical—too surgical—and a thesis which I shall endeavor to maintain to-day is, that gynæcology has become so largely surgical as the direct result of surgical interference in midwifery practice; the accoucheurs are the providers of material for the gynæcologists. . . . The term surgical is employed here with almost exclusive reference to the midwifery forceps."

I am not using too strong an expression when I say that this amounts to an indictment of the present practice of midwifery all over the world; and coming as it did from the presidential chair of this Section, it must have caused much searching of heart on the part of accoucheurs on both sides of the Atlantic.

But it was not only on the general practitioner that the strictures of the address reflected. If the practice of midwifery were aberrant, no small part of the blame must lie at the door of the teachers of obstetrics. If the practice were loose, the teaching must be greatly at fault.

It could not be supposed that such a statement could be made by one in the position Dr. Sinclair occupies without due deliberation, because it directly implied that one section of those whom he was then addressing was engaged in providing employment for the others, either by reason of gross and culpable error of judgment or by direct malpractice.

If this were so, it was time to speak out. A presidential address is, like a sermon, beyond the pale of discussion, or it would have been of interest to hear what those present had to say for themselves. And so important did the question appear to those responsible for the selection of the subjects of our formal discussions, that it seemed to warrant the whole matter being opened up here. It could not be better considered than by a gathering such as this, including as it does representatives from many parts, and embracing general practitioners, specialists, and teachers.

---

[1] Read at the recent meeting of the British Medical Association.

The Value of the Forceps as a Surgical Instrument.

It is not, I take it, required of me, and it would be hopeless in the time at my disposal, if it were, to attempt an exhaustive account either of the proper use or of the abuse of the forceps in midwifery practice. I shall best fulfil my duty to-day by raising points for discussion, or suggesting the lines which the discussion should take, rather than by attempting any necessarily inadequate deliverance on the whole subject.

I begin by asking, "What is the special value of the forceps as a surgical instrument?" To Baudelocque is due the statement that the midwifery forceps is the most valuable surgical instrument that has ever been invented, and "with this statement," says Dr. Sinclair, "we are all more or less in agreement." I think there are few here who will cavil at my reply to the question I have just put, if I say that the special value of the forceps is that it enables us to shorten the suffering and diminish the risk of childbirth. If it is to justify the claim of Baudelocque it must accomplish these results in a sensible proportion of cases, because if it is only to be employed at rare intervals to diminish the suffering or even save the life of an occasional mother, while we should cherish it as a valuable component of our armamentarium, we would scarcely place it in the position claimed for it by Baudelocque. Apart, however, from the question of the frequency of its proper use, I may take it for granted that its value consists in the power it gives us on certain occasions of shortening the duration of labor, of diminishing the dangers of the mother, and greatly increasing the safety of the child.

But when we turn to the scope of the instrument and ask what are the indications for its use, we reach highly debatable ground. I dare say if the question were put to twenty individual members of this meeting there would be given twenty distinct answers, all more or less divergent, and some diametrically opposed. Perhaps the one side would best be represented by the answer Dr. Sinclair would give, while that of his anonymous friend, who startled him with the statement that his forceps cases amounted to 70 per cent. of his whole midwifery practice, would adequately represent the opposite; and these two, along with the other eighteen, would give one more instance of the many-sided character of the human mind!

When Forceps Should be Used.

I shall make no attempt to analyze or classify those hypothetical answers. It will be more useful if I try to lay down a general principle which ought to guide us in seeking the indications for the use of this instrument. I think I can be sure of taking you all with me when I say that a direct indication for the use of the forceps arises whenever—and only whenever—we are assured that the danger of interference has become less than that of leaving the patient alone. So simple is this statement, that to some it may seem a mere truism, and to be scarcely worthy of deliberate enunciation. Nevertheless, I believe it is, in the case of some practitioners, just one of those pious opinions which are assented to the moment they are stated, and the moment after practically ignored.

I venture to think it is more than a mere truism, and that it ought to be kept more constantly before us and more strictly acted on than it sometimes is. For let me point out that it implies that the use of the forceps, in practically every case, is a matter of individual judgment. There is no accepted set of rules which can be applied to each emergency, and which will decide for us in each case whether we are to act or to hold our hand. It is for this reason that the question of the proper use of the forceps is often so difficult. Much more than in most surgical operations have we to consider in each case, not one, but many circumstances. If we discover an abscess, or a cancer, we deal with them at once by opening or excising them according to fixed principles, and by methods which have been determined by experiment and settled by experience. But the operation of the forceps comes undr a diffrent category. A fœtal head and an ovarian tumor cannot be dealt with on the same lines. It is sound practice to remove the latter as soon as it is detected, but the mere presence of a fœtal head in the pelvic cavity is not an adequate reason for its summary removal. There are many things to be considered, many things to be taken into account—the state of the passages, the efficiency of the pains, the condition of the child—ere we can justify any effort to supplement or supersede the processes of Nature. Each case must be decided on its merits, and in every case when the question of forceps arises, we must ask, "Is it safer to act or to wait?" We have no justification for interference until we have decided that the danger is in waiting, nor, let me add, in failing to act when we have decided that the danger is in delaying. It is this necessity for individual judgment in every case which renders the employment of the instrument a matter of grave responsibility.

Premature Use of Forceps.

From what I have said, it will follow that a certain number of the instances of improper use or abuse of the forceps are due to errors of judgment—the instrument is employed when it should not be used, or else it is not used in cases when it is indicated. It was to the frequency with which the first error is committed that Dr. Sinclair specially devoted his address last year, and no doubt a very substantial proportion of the instances of the abuse of the forceps comes under this category. But this does not by any means represent all the cases of misuse of the forceps; for while injury is inflicted in many cases by the premature use of the instrument, and in a smaller number by undue delay in its employment, a very large part of the injury to mother and child—and thus a large part of what may be properly termed the abuse of the forceps—is due to faulty technique.

I may perhaps best put it thus: (*a*) The forceps are often used at the wrong times. (*b*) They are sometimes not used at the right times. (*c*) They are often badly used at both times. The danger of the forceps operation, apart from the risk of septic infection (which, of course, is common to most operations), may be summarized thus:—

1. The mother's parts may be bruised, lacerated, or otherwise injured by mechanical violence.
2. The too sudden emptying of the uterus may be followed by imperfect retraction, and, consequently, dangerous hæmorrhage.
3. The fœtal head may be unduly compressed, lacerated, or otherwise damaged.

Now, in spite of all that has been done and is being done to diminish the risk and suffering of disease by anæsthesia, antiseptics, and other means, there seems a lingering doubt in the minds of some as to whether the abolition of the pain and suffering of labor would be an unmixed blessing. This seems to me to be a survival of the same barbarous instinct which prompted the so-called religious objection to the use of chloroform in labor, and is as unworthy of respect. For myself I have no such scruple, and were I able to do so with safety I should gladly abolish every pain after the first, and reduce the duration of labor to a bare minimum. But unfortunately this is not practicable. Physiological labor consists of a series of phenomena which require time for their development; and a grave abuse of the forceps consists in their employment in such a way as to interfere with the proper sequence of the normal physiological events.

Forceps in Undilated Os.

This leads me to consider a group of cases in which we have the most striking illustration of the use of the forceps at the wrong time, namely, their application through an undilated os. There is, no doubt, a small minority of cases in which such an application is, for special reasons, justified and even demanded; but these are few and far between, and the disastrous results following their use in many of these cases are only too familiar to obstetricians. The statistics of this practice, obtained from the results of the Rotunda Hospital under Dr. Johnston's Mastership, are in themselves a commentary on the dangers both to mother and child.

Spasmodic Rigidity.

I would draw particular attention to the dangers involved, because I feel sure there is a group of cases falling under the term "undilated os" which is not so generally recognized as it should be, and the non-recognition of which seems to me to account for more damage to the mother's parts than we may at first admit to be likely. Every one is familiar with, and no one can well overlook, the ordinary form of undilated os, in which, either from early rupture of membranes, narrow pelvis, mal-presentation, or other cause, the os remains for hours in a half-dilated state. If, in spite of such a condition, the use of forceps is for some reason, good or bad, decided on, the operator recognizes the condition, calculates the risk, and, it is to be hoped, does what he can to minimize or obviate that risk to the utmost of his power by careful management. But there is another form of undilated os quite as unsuitable for the forceps operation as this, and which is the more dangerous because it is not always recognized. I am convinced it accounts for the occurrence of by far the larger number of cases of lacerated cervix. For while the delivery of the head through the variety of undilated cervix referred to is always a difficult and often a dangerous operation, nevertheless it can be done, and is done in many cases, given a proper instrument, the requisite skill, and abundant patience. It is not so with the variety I now wish to consider. Here is the sort of case I refer to: A woman has been in labor for some hours; probably the membranes have ruptured early, and dilatation is slow. Opium possibly has been given, or chloroform has been used, and after a time an examination, made in the absence of a pain, shows the os soft, flabby, and apparently nearly the size of the child's head. The head is probably well down in the cavity, and lying fairly well for the application. Here, then, seems a suitable case—a long labor, a tired woman, perhaps, if I may whisper it, a wearied accoucheur, and most important of all, an os, if not dilated, at least dilatable. A little more chloroform is given, and then without any difficulty the forceps are slipped over the head and, of course, inside the os. By this time a uterine pain, excited by the manipulation, begins, and if the os is now examined it will be found spasmodically contracted round the head and forceps, and not more than half its former apparent size. Unfortunately, it sometimes happens that an examination is not made, and traction is commenced with results which do not require description here. The case is one of partially dilated, spasmodically rigid os, and may be described in physiological language as an example of uterine inco-ordination, or, popularly, as a uterine stammer. The os during an interval is soft, flabby, and easily stretched; during a pain it becomes tense, hard, and greatly narrowed.

I have several times been asked to see patients in consultation, where the attendant thinking the os was fully dilated, had ruptured the membranes, and found after uterine pains had begun again, that the os was less than two-thirds dilated. The same mistake had arisen—the os was examined in the intervals, and its spasmodic rigidity overlooked. To use the forceps here and to treat the case as if the os were dilated or dilatable is one of the gravest, and, I fear, only too common examples of their abuse. On account of the tension and thinness of its edge, very slight efforts of traction will tear the cervix into the vaginal roof, inflicting frightful injury.

Secondary Inertia.

I need not detain you by dwelling on the dangers of the application of the forceps to a woman in a condition of secondary inertia, and to the almost inevitable results in the shape of deficient retraction and hæmorrhage in the third stage and post partum. And I do not doubt that other instances of the use of the instrument at the wrong time will be sufficiently emphasized by one or other of those who follow me in this discussion.

Failure to Use Forceps When Necessary.

Let me then say a word about the second point I raised, namely, that the forceps are sometimes not used at the right time. Whatever material damage or injury may be inflicted by the injudicious use of the forceps, there is one injury—once common enough, and now rarely to be seen—namely, vesico-vaginal fistula, whose disappearance is in great measure a result of the earlier, perhaps often premature, application of the forceps. No more striking instance of the beneficent use of the forceps can be adduced than that which we may point to in the almost total disappearance of this frightful injury. Most men nowadays take care that the long, tedious, grinding pressure of an ill-placed head, on a contracted or otherwise modified pelvis, is never allowed to occur, and the consequent necrosis and sloughing are thus largely avoided.

But I cannot help thinking that the reasonable reaction which has shown itself in many schools against the too frequent use of the forceps may in some measure diminish our vigilance in this matter, and that from an unwillingness to interfere we may unwittingly render possible an undue amount of maternal bruising and other damage. I could not find a better illustration of what I refer to than I do in the Rotunda Report for 1896-97. Here there is a record of 56 forceps cases, and in the summary of the indications of their use I find that 45 were treated by forceps on account of "delay in the second stage of over four hours." In the absence of further statistical detail I cannot express an opinion as to whether the forceps in these 45 cases were rightly or wrongly employed, whether it might not have been better to have interfered sooner than the fourth hour in some cases, or to have waited even longer still in others before artificially finishing the labor. The report simply states that "Forceps were applied in cases of delay of four hours in the second stage with material benefit to the mother and greater safety to the child, and we consider the results obtained, more particularly as regards the life of the child, amply justify us in not delaying longer" (p. 10).

The objection I would make to a statement such as this in an authoritative report is, that it gives us an impression that the element of time is the primary determining factor. I am quite at a loss to understand why, for example, we should wait in every case for four hours after the os is dilated and when the pains are not advancing the head. To my mind the latter point is the crux. If I could assure myself that after dilatation of the os the advance of the head was blocked—either by the size of the head, the resistance of the canal, or the feebleness of the pains—I should not wait a moment before using the forceps. I could not assure myself that this was the case without waiting a certain time, but I am perfectly certain that in many cases I should reach absolute assurance long before four hours had elapsed. If I am certain of this in one hour, why should I wait three more? What do I gain, and what does the patient gain, by my watching her enduring two or three hours of further misery and suffering? If the head is in the brim and shows signs of descending, I shall wait till it descends, because the operation of forceps is easier in proportion to its descent. If the head is in the oblique diameter and shows signs of rotating, I shall certainly wait till the rotation is complete, because the application of forceps is simplest and the delivery safest when the head is in the antero-posterior. But if neither of these things occurs from fault or failure of any factor, I see nothing to be gained, but much to be lost in waiting after I am certain that progress is at an end. The danger of interference is then less than the danger of waiting.

There are many wise obstetric aphorisms, but none wiser than this: "Wait till you see what Nature can effect—not what she can endure." No one need imagine that this can be read as an apology of meddlesome midwifery. As long as Nature is preparing or opening the passages, and moulding or advancing the passenger, she is doing what she can do better than any of us, but she sometimes fails, and it is because she fails that Baudelocque's commendation of the forceps is "one with which we are all more or less in agreement," because by its means we have saved women hundreds and thousands of weary hours of useless suffering and preserved countless children alive. Let it not be supposed that I am traversing the practice of the Rotunda Hospital. The report at my disposal gives me no facts on which I could base my criticism; what I suggest is that the mode of stating the grounds of interference is essentially misleading, and I wish to enter my protest against the idea which it conveys that the time element alone is a proper basis for such interference.

If I am asked when, under such conditions, I should apply forceps, I should make a reply in words which I first heard from the lips of my respected teacher and your distinguished President, and which I have never forgotten: "When the passages are in a fit state and Nature fails to advance the head, then I should apply the forceps."

Forceps in Occipito-Posterior Positions.

I must leave to others the indication of other cases in which the forceps might be used with advantage when their use is avoided or delayed. But I should like to direct attention to one group of cases in which the forceps might be employed with greater discrimination than is, I think, sometimes used. I refer to occipito-posterior positions of the vertex. We all know that in such cases, when flexion is well marked and when the pains are efficient, descent and forward rotation is the most usual ending, while in those cases in which flexion is deficient, descent is difficult and backward rotation the rule. My own view and teaching in the matter is this—that when flexion is deficient, as shown by the ease with which the bregma can be reached, the sooner forceps are applied after the os is dilated the better. In view of the practice generally recommended in regard to these cases this may seem heroic if not rash. But I confess I have little faith in the attempt at manual rotation; my experience of it in these cases is that it is futile, and on theoretical grounds I have never understood how it can be anything else. When it succeeds it seems to me almost certain that rotation would have occurred without it. For if natural rotation is the result of the action of the pelvic floor on the advancing head, I cannot understand how twisting the head in the canal can develop it when it is defective. If in rotating the head we brought it to bear more firmly on the floor, I could understand that a sound principle was involved, but we can scarcely claim that we do this. Everything, however, depends on the forceps employed. With the axis-traction forceps, more especially if slightly modified, we can develop flexion and secure rotation in nine out of ten cases, and in the tenth would probably have done so too had we used them soon enough.

Faulty Technique.

Finally, the forceps are abused by being badly used; not only when they should not be used, but also in cases in which their use is indicated. Now I am convinced that to these faults of technique, as I may call them, are due not only the greater number of the minor errors in the use of the forceps, but likewise some of the gravest examples of maternal and fœtal injury. I venture to refer to a few of them—some of those I regard as of most importance.

The first fault of technique to which I ask attention is one which is still too common. It consists in not employing what is indubitably the most efficient instrument. If a workman chooses for his purpose a tool which is less efficient than some other which is available, he may execute the work, but he does so either less perfectly than he might, or does so with an unnecessary expenditure of time and energy. So if the problem to be solved in the forceps operation is to extract the child with the expenditure of as little force as possible, we fail in that problem if we do not use the instrument which enables us to economize our force to the greatest extent. That this instrument is one constructed on the principles first laid down by the late Professor Tarnier has been long taught by every member of the school to which I belong. Professor Simpson has illustrated the value of the axis-traction forceps by saying that a man who has once used them would as soon think of reverting to the old forceps as a man who could keep a carriage would think of conducting his practice on foot.

When I was a boy I was more or less familiar experimentally and otherwise with a piece of mechanism, the prototype of the modern bicycle appropriately and familiarly known as a "boneshaker." It was somewhat substantially, even massively, constructed of wood and iron. It possessed wheels, a backbone, a saddle, and a steering bar, just like its descendant, and among other things it had tire which, if it had no other advantages, was at least durable and puncture proof. It certainly was a very different affair from the machine on which we see young and old, rich and poor, gliding along noiselessly and almost without effort at five to fifteen miles an hour. Now I should be inclined to say that a man is just as likely to revert to the old instrument after having used the axis-traction forceps as he would be to give up a good bicycle of 1898 for a boneshaker of the early Seventies. The main argument advanced in favor of the older forceps is its simplicity, and this argument is quite as much in favor of the boneshaker, for its construction was complicated neither by ball-bearings, spring saddles, nor pneumatic tires. But I have heard a practitioner declare that he could do as much with the old forceps as another could with the axis-traction forceps. I would as soon believe that the average man on the primitive bicycle I have referred to could ride as far or as fast, and with as little fatigue, as one on a modern machine.

The Axis-Traction Forceps.

To object to the instrument that it is complicated is an argument with which, I confess, I have little patience. That a couple of rods and a handle bar should present a serious difficulty to the acceptance of an immensely more efficient instrument is an argument scarcely worthy of a grown man.

I may take it that practically it is universally admitted that axis-traction is of great advantage at the brim, and with regard to its efficiency there I need not detain you. The pleasure I have of knowing that many of those I address constantly employ and strongly advocate these instruments is saddened by the knowledge that there are some who listen to me who are not yet convinced of their efficiency, save at the brim. But I am certain of this, that those who have systematically used the instrument in all their forceps cases, will bear me out that for once they have proved their efficiency at the brim, they have done so ten times in the cavity and twenty times at the outlet. They will speak of the security of the grasp, the absence of dangerous compression, the ease of extraction, the delicacy with which the proper axis can be ascertained and followed, and the safety to the soft parts which it insures. They will perhaps, most of all, commend the instrument on account of the facility with which it produces or permits of the production of rotation.

Compare this with the deliverance on the axis-traction forceps I find in one of the recent text books on Midwifery. "The use of the axis-traction forceps is practically confined," says the author, "to pulling the head through a contracted brim; when the head has passed into the cavity it is no better than the ordinary kind. It is only of use, therefore, to pull the head through a somewhat smaller brim than can be passed by the latter. In cases where the difficulty is so great as this, it is in all probability better to turn." This reduces Tarnier's work to a vanishing quantity. And again, in another part of the same book, I find, "they all (that is, axis-traction forceps), however, have the same disadvantage of compressing the head during their application."

I confess it is difficult for one who has used these forceps for nearly twenty years to treat such comments seriously. As to the question of compression, I do not believe that the compression of the head by the axis-traction forceps is as much as 10 per cent. of that inflicted by the ordinary forceps. Any one can prove to himself that after the blades are in position and in contact with the head, one-half turn of the screw is all that is necessary to keep them in position. Not infrequently the screw slips out of its catch during traction, and I have delivered many cases in which the screw was off all the time the forceps were in the cavity. When the head is in the cavity, the pressure of the walls, the inward pull of the rods, and the cephalic curve of the blades keep the latter in perfect security on the head. With the ordinary forceps, it is obvious that the harder you pull the more you grip the handles—not in order to hold the head, but to prevent the handles from slipping from your grasp; nevertheless, the head bears the brunt of the pressure.

As to the efficiency of the instrument in the cavity, I have said all that I need say, and as to removing the forceps when the head has reached the perineum, for myself I should as soon think of leaving the patient in the third stage of labor as of removing the forceps before complete delivery of the head. I am prepared to maintain that in axis-traction forceps, properly constructed and properly used, we have not only a means of accomplishing delivery in cases of delay with safety and success, but by their means we are able to avoid laceration of the pelvic floor in cases in which this would unavoidably occur if left to Nature. For I have long held that deep anæthesia, combined with the skilful use of the axis-traction forceps, is the best treatment for rigid perineum.

The Guiding Principle in Applying the Blades.

The second fault of technique to which I shall direct attention is in connection with the application of the blades. Of course when the head is at the outlet and fully rotated, the application can only be faulty from gross carelessness; but when the head is in the cavity and still in the oblique diameter, a very faulty application is often made. It is still largely the teaching and the practice of the British schools to apply the forceps as far as possible in relation to the pelvic transverse without reference to the position of the head. Now when the head is high in the cavity, or even low in the cavity and not rotated, I am convinced that this is wrong. The result of this practice is that we obtain a more or less oblique grasp of the head, and it follows that, since the blades tend to rest on somewhat sharply curved portions of the head, one or other inclines to slip off during application, and the difficulty of locking is notorious. Equally notorious is it that the vicious practice of trying to rectify this by twisting the blades into position is a source of danger to mother and child. But apart from this, after locking is effected and traction begun, one of two things follows:

1. The head as it descends rotates, and in doing so throws the forceps into the opposite oblique. This usually happens with axis-traction forceps when rotation is favored. If delivery is effected without removing and readjusting the forceps, extensive damage to the outlet will follow.

2. The head descends without rotating, and engages the outlet in the oblique. This often happens with the older forceps, and is even more disastrous than the former.

I venture to think that the practice of the French school is much sounder. The forceps should be applied to the biparietal diameter of the child's head wherever situated, and then, as the head descends, rotation will bring the blades into the transverse diameter just as the head enters the antero-posterior, and the head, forceps, and pelvis will present proper relations at the outlet. I feel sure that extensive damage to the lower part of the vaginal canal—especially internal laceration of the perineum—is often caused by oblique position of the head or of the forceps at the outlet. The application of the forceps to the side of the head may require more care than the other methods, but we are there to take what care is necessary for the benefit of the patient.

I need not dwell on the objectional results of jerky iregular traction. A uterine pain begins almost imperceptibly and increases in intensity by fine gradations. So should an effort of traction. Only by this can we bring the head and canal into proper relation, and only by this can we develop rotation and minimize the danger of pressure.

The Mode of Traction.

Every year I become more and more convinced of the advantages the axis-traction forceps give us in protecting the perineum from injury caused by undue delay, or laceration caused by faulty mechanism. The procedure I adopt is as follows: As soon as the vault touches the floor the forceps are held between the finger and thumb of the right hand, while the left is placed over the fundus. I may say at once that I never in any circumstances "support the perineum." The left hand enables me to control the retraction, to detect the beginning of a pain, and often to aid the action of the forceps by efficient pressure. I press the chloroform as far as will keep the patient quite still. Extraction is effected by gentle pressure on the traction bar, the rods and shanks being kept just touching. With certain exceptions I act as far as possible only with a pain, taking care always that traction is effected in such a way as to maintain the advance of the suboccipito-bregmatic diameter. In this lies the secret of success, for by means of these forceps we can restore or maintain the relation of this diameter to the outlet—a relation which is often disturbed by peculiarities of the pelvis, and more often by alteration in the shape of the head, caused by moulding or swelling of the scalp, associated with long and difficult labor.

There is one group of cases, however, which form a marked exception to the rule of extracting with a pain. Not infrequently we find in elderly primiparæ that every uterine pain, when the head is low, is accompanied by a spasmodic action of the muscles of the floor, which for the time narrows the vulvar orifice and throws the perineum into a state of tense rigidity. It is in cases of this type that we find instances of perineal laceration. In such a case I deepen the anæthesia and carefully avoid traction, save in the intervals of pains. Delivery is simple and easy thus, for the orifice is often wide enough when not spasmodically contracted. This is another instance of inco-ordination, and must be treated in this special way. Without forceps such cases will continue in labor for hours, and as the spasm only passes off when the pains are checked by chloroform, this alone is not enough.

Conclusion.

In conclusion, let me say that while arranging these all-too-inadequate thoughts I was painfully conscious how much better it could have been done by many of those whom I am now addressing. But I feel sure that no one whom I address could feel a keener sense of responsibility in the task imposed on me than I have done. If I have said more or less than I should have said, that will be rectified by what will be said after me. But one thing I trust will be made plain to all that hear what is to be said to-day, or who will read it afterwards, and that is that the use of the midwifery forceps is a matter of grave responsibility. That their improper and unskilful use does grievous injury has been made plain, that in appropriate and in skilled hands they may serve a beneficent purpose of the highest order is not less certain. Whether the forceps are to be an engine of disease and death, or a means of protection alike to mother and child, will depend upon whether they are used with a seeing eye and an understanding heart—upon whether the obstetrician is prepared to put aside all adventitious considerations, "the uneasiness of the gossips"—even the demands of the patient, most of all his own convenience, and interfere when, and only when, he has deliberately assured himself that the risk of interference is less than the danger of waiting. If this principle is unswervingly followed and carried out with reasonable skill, Baudelocque's commendation will still hold good, and the forceps will maintain their high place among the products of the ingenuity of man.

A RATIONAL METHOD OF RELIEVING ASPHYXIA IN THE NEWLY-BORN INFANT.

Attention is called by S. Stringer (*Virg. Med. Semi-Monthly*) to a method based upon chemical and philosophic principles, of relieving asphyxiated newly-born infants. Its object is to maintain fœtal life until the sensorium can sufficiently recover to respond to the nervous excitants of respiration. A case of fœtal circulation carried on, to the writer's mind, by the aeration of the blood through the medium of the placenta being exposed to the atmospheric air, was the means of utilizing this phenomena in a subsequent case of asphyxia in a newly-born infant. The pulsation in the end becoming feeble, and rapidly so when the placenta was delivered, the latter was cleaned of clots and the maternal surface exposed to the atmospheric air. In a very short time the pulsation perceptibly increased in force, the livid and death-like hue being displaced by one of life, sensibility was restored and the process of respiration commenced. The writer felt certain that had the placenta remained in the os uteri or vagina, excluded as it was from atmospheric air, death from asphyxia would have resulted. At all times the cord should be examined for any interference with free circulation and the same corrected.

THE BENEFICIAL EFFECTS OF ONE DISEASE AS REGARDS ANOTHER.*

By HARRY CAMPBELL, M.D., F.R.C.P.,
Physician to the North-West London Hospital.

One disease may act beneficially as regards another by preventing or curing it.

I. The Prophylactic Effects.

These can be dismissed in a few words, since our knowledge of them is limited. Passive pulmonary congestion and hypertrophous emphysema would appear to diminish the tendency to pulmonary tuberculosis. Certain germ diseases, again, are preventive of others. Thus the bacillus pyocyaneus counteracts the activity of the B. pneumoniæ and the micrococcus erysipelatis. The various exanthems, on the other hand, do not confer immunity against one another, numerous instances having been recorded, from Murchison downwards, of two or more of them coexisting. One other instance of prophylaxis: Sir Dyce Duckworth[1] refers to the fact (observed by Diday and J. Hutchinson) that typhoid fever and pneumonia cause the postponement of the secondary symptoms of syphilis for from three to five months.

---

*Read before the Brixton (Eng.) Medical Society. The writer has supplemented his paper by information gained at the discussion which it called forth, and also at the discussion on the same subject held at the meeting of the North-West London Clinical Society on February 17. He is under great obligation to Dr. J. R. T. Conner, who has generously placed a mass of valuable literary material at his disposal.

II. The Curative Effects.

These are much more marked and well defined, and will be considered under five headings:

1. *Metastasis.*—This may be defined as the disappearance of disease from one part concurrently with its appearance in another. Thus, a urethral discharge may suddenly disappear—temporarily, at least—upon the supervention of orchitis, coryza upon the occurrence of pneumonia, quinsy upon the development of gouty arthritis. Dr. Mutch, of Brixton, saw an instance of the latter: Husband and wife were stricken with quinsy; when the former was in the height of the distress caused by the swelling, he developed acute gout in the toe, and forthwith, as if by magic, the throat trouble subsided; in the wife it ran the ordinary course. Now, the important question we have to ask regarding these cases is whether the occurrence of the new disorder acts curatively towards the one which it replaces. Perhaps the best examples of metastasis are afforded by functional nervous disorders, which shift their site or alter their expression from moment to moment, day to day, or even from year to year. Thus, in the course of an hour or two headache may give way to backache, backache to a fit of palpitation, and this again to an attack of gastralgia; and similarly, in the lapse of years, we may find migraine, spasmodic asthma, and angina pectoris successively displacing one another. Here again the question arises whether the supervention of the new disorder does not tend to keep its predecessor at bay, thust acting beneficially towards it. The probability is that it does. The alternation of morbid phenomena may be regarded as a variety of metastasis. As instances, we may mention the alternation of glycosuria and eczema, deafness and vertigo—both of which have been observed by Dr. James Taylor—eczema and asthma. Dr. Denne, of West Kensington, has told me of a woman who is a great sufferer from dyspepsia. A short time ago she developed eczema upon the back of the neck. Since then the dyspepsia has much improved, and each shows a tendency to alternate in intensity with the other. I have recently had under observation a patient of Dr. Chittenden's, who has twice had a severe attack of urticaria, which on each occasion has terminated in a copious hæmatemesis. Whether we regard these cases as alternations of symptoms merely or of actual diseases is of small import. This is a purely academic question. What is important for us to note is that the latest morbid development

---

[1] Sir Dyce Duckworth, The Lumleian Lecture, 1896, "The Sequels of Disease."

appears to hold its predecessor in check. Nay, who can doubt that in Dr. Chittenden's case the hæmorrhage had something to do with the disappearance of the eruption? The phenomena of counter-irritation are probably related to those of metastasis. Just as an attack of orchitis arrests a urethral discharge, or an eczematous eruption relieves an asthmatic seizure, so a violent stimulation of the skin may help to subdue a deep-seated inflammation. Dr. Dickinson[2] has attempted to show on physiological grounds that counter-irritation is valueless; but, when we reflect upon the phenomena of metastasis, we shall be more inclined to believe in the efficacy of that traditional method of treatment. In this connection I would refer the reader to a pamphlet written more than sixty years ago, for an opportunity of reading which I am indebted to the kindness of Dr. Shaw Mackenzie.[3]

2. *Mechanical Effects.*—The good effect of one disease upon another may be largely due to mechanical causes, as in the cure of ringworm by the induction of suppuration or of lupus by syphilitic ulceration, an instance of which was recently recorded by J. Ross McMahon.[4] A remarkable example of this kind of cure is related by Dr. Green, of Brixton. A man had for some time suffered from a troublesome loose cartilage in the knee-joint. One day he injured the affected joint, and arthritis ensued, with the result that the loose cartilage became fixed by adhesions, and he ceased to be troubled with it any further.

3. *The Beneficial Effects of Trauma.*—It is by no means rare for an accident to act beneficially upon the health. The following are cases in point:

Case of Chronic Rheumatism Cured by a Severe Accident.—A lady who had been a constant sufferer from rheumatism, some fifteen years ago met with an accident necessitating the amputation of both legs. Since then she has been wholly free from the rheumatism. This good result is doubtless in part due to her being no longer subject to great modifications of temperature (since she is compelled to keep in one suite of rooms), and in part to her having almost entirely abandoned a meat diet; but it does not seem improbable that the accident or the operation had some direct effect.

Case of Syphilitic (?) Periostitis Cured by Fracture of the Humerus (communicated by Mr. Kennard).—A man with a history of syphilis which had not been adequately treated complained of deep-seated pain above the external condyle of the humerus. After three months of this pain, which only yielded to opiates, the patient sustained a comminuted fracture of the lower part of the humerus. He was treated in the ordinary way, and made a good recovery. Since the accident the old pain has completely disappeared.

Case of Psoriasis Disappearing after an Operation (related by Dr. W. Knowsley Sibley).—A woman with scirrhus of the breast had widespread and inveterate psoriasis. After removal of the diseased breast the psoriasis rapidly subsided.

---

[2] W. Howship Dickinson, Occasional Papers on Medical Subjects.

[3] "Counteraction Viewed as a Means of Cure." London: John Epps, M.D., 1832.

[4] J. Ross MacMahon, *Lancet*, November 27, 1897.

Case of Nervousness and Irritability greatly Improved by an Accident.—The following is extracted from a private letter: "Mr. A. met with a severe accident to his foot while riding. Strange to say, ever since this he is wonderfully changed; so much less irritable and domineering, and if he does get put out it is over and done with quickly, whereas before he would make the whole house uncomfortable for two or three days. He still limps, and could not shoot at all this summer, nor ride this winter, and, for one of his active habits, his lameness is a constant trial, and yet he is generally cheerful over it; so it is doubly wonderful. I get on very well with him now, and we talk politics, and often have a joke, whereas before I was often snuffed out if I ventured to address him, and made to understand that he considered me a rather unnecessary encumbrance in his house."

4. *The Beneficial Effects of Febrile Disorders.*—It will be convenient to treat this important branch of the subject under several subheadings.

a. Certain general but only temporary effects of fever may be first considered. Though doubtless the curative influence of febrile disorders is often largely due to the development of toxins, the direct effect of the fever itself must not be neglected. Febrile reaction would appear indeed to be a defensive mechanism. Lowey and Richter[5] have shown that the resistance of rabbits to the virus of pneumonia, diphtheria, and hog cholera is increased, if before inoculating the virus the temperature be raised by injuring the corpus striatum. Some of the curative effects of high temperature will now be mentioned. If a diabetic is attacked with fever—for example, typhoid—sugar may temporarily disappear from the urine, the excess of sugar in the system being presumably burnt off. Fever may likewise dry up a purulent discharge, as from the vagina or urethra, or from a wound. It may also, especially if acute, cause the absorption of callus, and even of new growths. Chronic tonsillar hypertrophy may subside temporarily or permanently under an acute fever like scarlet fever or pneumonia.[6] Fever may also exercise a beneficial effect upon leucocythæmia. Thorsch[7] records a case of this disease in which a rapid diminution in the size of the liver, spleen, and lymphatic glands occurred during the active fever of pneumonia, the leucocytes falling to one-third their previous number. Other cases of this kind have been recorded, but in all instances the effect has been temporary only.

b. We may next consider those cases in which the general health has been improved, or some specific disorder cured, by the occurrence of an exanthem. Most physicians have seen instances of improved health following upon a specific fever—typhoid, for instance. Surgeon-Major G. H. Younge, A.M.S., writes me that he used to suffer greatly during the hot weather in India. "The very sight of food would excite nausea, the liver never acted properly, and there was a constant tendency to diarrhœa with putty-colored stools. I lost weight, became markedly anæmic, and suffered from frequent febrile attacks." All this was, however, removed by an attack of malignant typhoid, since which he has enjoyed perfect health, the appetite and digestion being now always good, and the hot weather not affecting him the least. Dr. Younge has likewise kindly furnished me with the account of the first of the subjoined cases:

---

[5] A. Lowey and P. F. Richter, *Canada Lancet*, October, 1897.

[6] D. E. Corminas, *Lancet*, June 23, 1888; E. F. Benham, *Lancet*, July 4, 1896.

[7] Thorsch, *Wien. Klin. Woch.*, May 14, 1896.

Case of Improved Health following Cholera.—A very delicate strumous-looking man was a martyr to dyspepsia, and never felt well. After a severe attack of cholera, which nearly carried him off, he greatly improved in health, declaring that "he felt in better health than he ever remembered to have done before."

Case of "Rheumatism" Cured by Typhoid Fever (communicated by Dr. C. C. Vigurs, of Newquay, Cornwall).—A man of about 50 years of age had suffered for many years from rheumatism. In 1880 he had an attack of typhoid fever, and since then he has been quite free from his old enemy.

Case of Anæmia, etc., Cured by Scarlet Fever (communicated by Dr. St. John Kemm, Worle, Weston-super-Mare).—The patient had been suffering greatly from anæmia and leucorrhœa, had only twice menstruated, and then very scantily. At the age of 17 she contracted scarlet fever, and in the last week of that illness she menstruated freely, and has continued to do so quite regularly since. Her leucorrhœa and anæmia have disappeared, and she has become quite strong.

Case of Dyspepsia Cured by Typhus Fever.—A medical man writes to me: "For the first two years of my career as a medical student I had very indifferent health, being troubled with dyspepsia, gastric and intestinal. An attack of typhus fever contracted in hospital had a very beneficial effect in banishing all my troubles, and it was a matter of universal comment among my friends that I was a great deal stronger looking after than before my attack of typhus."

Case of Rhinoscleroma Cured by Typhus.—Lubiner[8] records a case of "rhinoscleroma in a man, aged 35, in whom the swelling and infiltration were so considerable that his nostrils were almost entirely blocked." The patient developed typhus, "on recovery from which all nasal obstruction had vanished, nothing but slight thickening of the mucous membrane being visible."

Case of Impaired Eyesight Improved by Smallpox (Mauthner[9]).—A boy, aged 3 years, developed basal meningitis in consequence of a fall upon his head. Sometime afterwards the sight failed, and was finally lost in the right eye. The patient, however, completely recovered his sight after an attack of smallpox, a result Mauthner attributes to the influence of the smallpox virus in causing absorption of the exudation at the base of the brain.

Case of Pulmonary Tuberculosis greatly Improved by an Attack of

---

[8] Lubiner, *Berl. Klin. Woch.*, October 5, 1891.

[9] Mauthner, *Med. Week.*, April 27, 1894.

Scarlatina (Lemoine[10]).—Directly the scarlatinal eruption appeared "the lung symptoms rapidly subsided, the râles almost disappearing, and the cough and expectoration ceasing, and after the disappearance of the eruption the improvement continued."

Finally reference may be made to the influence of measles in arresting whooping-cough.

c. Febrile disorders may exercise a beneficial effect upon mental disease,[11] a fact which has engaged the attention of alienists for some years past. Among the fevers which have acted in this way are typhoid, erysipelas, cholera, and intermittent fever, and Wagner has recommended the injection in mental affections of the erysipelas virus as being the least dangerous of the four. As we should expect, the cases which are most benefited are the milder and more recent ones. The good effects have in several instances been permanent. Dr. James Taylor referred, in the discussion on the subject of this paper, to the beneficial effects which fever sometimes exerts on epilepsy, and Lannois[12] has recorded a case of this disease which was improved by erysipelas, but made worse by typhoid fever.

d. The beneficial effect of erysipelas on other diseases must now briefly engage our attention. As Mansell Moullin[13] observes, "It has been known for many years that not only malignant growths, but chronic ulcers of the skin, lupus nodules, syphilitic sores, and other affections occasionally disappear with great rapidity after an attack of erysipelas. I have already pointed out that the virus of this disorder may do good in epilepsy and mental affections, and it has been known to act similarly in other disorders. Féré[14] refers to its good effect in affections of the eye, including leprosy, trachoma, irido-choroiditis, and orbital tumors. Jonathan Hutchinson[15] has seen nasal polypus, Schwimmer[16] cicatricial keloid, and Terret[17] callus rapidly absorbed under its influence, while Solles[18] and Chelmouski[19] bring forward evidence to show that it is serviceable in tuberculosis. The curative effect of erysipelas on lupus appears to be a matter of common observation. Lastly, I would refer to its remarkable influence on acute yellow atrophy of the liver, a striking instance of which was cited by Dr. Joseph Dulberg, of Manchester, in answer to a letter of mine published in the *British Medical Journal*,[20] as occurring in the practice of Professor Leube, of Würzburg. It strongly suggests the advisability of trying Coley's fluid in cases of this kind.

---

[10] Lemoine, *Journ. de Med.*, June 10. 1896.

[11] Julius Wagner, *British Medical Journal*, June 4, 1887; J. Keay, *Brit. Journ. of Ment. Science*, April, 1896; *American Med.-Surg. Bulletin*, May 30, 1896.

[12] Lannois, *Lancet*, December 15, 1894.

[13] Mansell Moullin, *Lancet*, May 2, 1898.

[14] Féré, *British Medical Journal*, February 2, 1896.

[15] J. Hutchinson's *Archives*, vol. iv, p. 79.

[16] E. Schwimmer, *Œsterr. Med. Ch. Pres.*, 1887, No. 27.

[17] Ferret, *Le Progres Med.*, November, 1886.

[18] M. Solles, *Lancet*, September 22, 1888.

[19] A. Chelmouski, *Deut. Med. Woch.*, No. 14, 1891.

[20] J. Dulberg, *British Medical Journal*, May 2, 1896.

e. The poison of influenza appears to have potent curative effects. It has apparently cured a case of gonorrhœal cystitis;[21] and Dr. Shirtliff,[22] of Malvern, has recorded the similar cure of a lady, aged about 60, who for some time had been under his treatment for chronic catarrh of the upper respiratory tract. "On the very day influenza came on the catarrh suddenly and completely ceased," and had not returned when the patient was seen five weeks afterwards. Mr. W. M. Scott,[23] M.R.C.V.S., has seen an opacity in the cornea of a horse disappear under the influence of influenza; but perhaps the most remarkable instance of the curative influence of this disease is that related to the Brixton Medical Society by Dr. Knight:

A lady, aged 45, suffering from malignant disease of the liver, contracted influenza, and was so ill that she made her will, and Dr. Knight thought she would die. But from that time onward the liver shrank, and the patient seemed to get quite well. The tumor, however, returned in eighteen months, and the patient eventually died.

f. The influence of vaccination in curing disease requires some mention here. It has been thought to protect against influenza,[24] and has been used in the treatment of pulmonary tuberculosis.[25] There is no doubt that it acts beneficially in whooping-cough,[26] and certain chronic affections of the skin, a fact pointed out by Sir James Grant[27] as early as 1863, as well as by other observers. Dr. Milson, of Hampstead, regards the presence of eczema as an argument for, rather than against, vaccination; and Dr. Mutch, of Brixton, has seen obstinate eczema clear up after it.

5. I now propose to record a few miscellaneous cases showing the same beneficial action of disease.

Case of Chronic Rheumatism Disappearing upon the Supervention of Cancer.—A woman in early life had two attacks of rheumatic fever, which left her a martyr to "chronic rheumatism." When 58 she manifested unmistakable signs of malignant disease of the liver, and ever after all signs of joint trouble completely disappeared.

Case of Paralysis Agitans removed by Hemiplegia (communicated by Mr. C. H. Fowler, Potter's Bar).—A farm laborer, aged 73, had, until two years ago, suffered from paralysis agitans for a period of twenty years. It was of a very severe type, affecting the head, arms, and lower extremities, and quite diagnosable a considerable distance away. Two years ago he had an attack of right hemiplegia (probably embolic), and it was immediately noticed that the tremor had quite ceased, not only on the affected side, but bilaterally. From this attack he made a good recovery, and his tremor has not returned.

---

[21] Goldberg, *Centralb. f. Inn. Med.*, June 29, 1895.

[22] E. D. Shirtliff, *British Medical Journal*, April 11, 1896.

[23] W. M: Scott, *Lancet*, July 25, 1896.

[24] Goldschmidt, *Berl. Klin. Woch.*, November 19, 1890.

[25] Juriansky, *Vratch*, 1891, No. 41, p. 923.

[26] Bolognini, *Med. Week.*, 1895, 41; Cavalieri, *Gazz. d. Osp.*, June 1, 1894. E. Müller, *Gaz. Med. de Strasbourg*, July 1, 1891; Th. Purcell, *British Medical Journal*, August 29, 1891.

[27] Sir James Grant, *Med. Times and Gaz.*, March 14, 1863.

Case of Migraine removed by an Acute Auditory Affection.—The patient—Dr. T. Reuel Atkinson, of Sherborne—himself published the case in the *Lancet*, August 27, 1892, and the following facts have been kindly communicated to me by him. "In 1891 I lost the partial hearing in my right ear, and in April, 1892, this was followed by an almost total loss of hearing in my left ear. Before that I had for as long as I can remember suffered from attacks of periodic sick headache, and constipation more or less. Since losing my hearing I have had no constipation and no migraine." In a second letter Dr. Atkinson writes: "I am unable to tell you much about the nature of my deafness; the mischief is in the internal ear, and that is almost all I know about it. As to the cause I am quite in the dark. I can but surmise that it may have followed upon an unrecognized influenza. I am absolutely free from headache now. Formerly I never went a month without one, and rarely a fortnight, and when I had a headache it usually lasted all day till the evening. The headaches were usually accompanied with vomiting, but now I am never sick nor sorry."

Two Cases of Diabetes apparently Cured by the Occurrence of Cancer (communicated by Mr. W. A. Easte, Hanslope, Bucks).—A man was thrown out of a cart, and diabetes set in and lasted from four to five years, when the symptoms of diabetes abated, the sugar almost entirely disappearing from the urine. Shortly after this he died, the *post-mortem* examination revealing cancer of the stomach. The other case was that of a woman, about 45 years of age, whom Mr. Easte had been attending during some years for diabetes. The patient developed malignant disease of the rectum, and since the discovery of this all the symptoms of diabetes have been absent.

Here I must end a very inadequate paper on a very important subject. It has, however, one merit—that of being the first attempt (so far as I know) to deal with this subject in anything like a systematic and comprehensive manner. I earnestly hope my remarks will do something to stimulate inquiry in the direction indicated. The inducements are great. Already observation of the curative action of erysipelas has given a clue to treatment, with brilliant results; and who knows but that we may discover other clues which shall help us to still greater achievements? I am sanguine enough to believe we shall.

THE DISINFECTION OF ROOMS.

Novy and Waite (*Medical News*, May 21, 1898) conclude a paper upon the above subject with the following general directions:

(1) All cracks or openings in the plaster or in the floor or about the floor and windows should be caulked tight with cotton or with strips of cloth.

(2) The linen, quilts, blankets, carpets, etc., should be stretched out on a line in order to expose as much surface to the disinfectant as pos-

sible. They should not be thrown into a heap. Books should be suspended by their covers so that the pages are all open and freely exposed.

(3) The walls and floor of the room and the articles contained in it should be thoroughly sprayed with water. If masses of matter or sputum are dried down on the floor, they should be soaked with water and loosened. No vessel of water should, however, be allowed to remain in the room.

(4) One hundred and fifty centimetres (five ounces) of the commercial 40-per-cent. solution of formalin for each 1,000 cubic feet of space should be placed in the distilling apparatus and as rapidly distilled as possible. The key-hole and spaces about the door should then be packed with cotton or cloth.

(5) The room thus treated should remain closed at least ten hours. If there is much leakage of gas into the surrounding rooms a second or third injection of formaldehyde at intervals of two or three hours should be made.

TUBERCULOSIS OF THE TESTICLE.

Dr. R. Koenig (*Deutsche Zeits. f. Chir.*) contributes an article which treats chiefly of the etiology and treatment of tuberculosis of the testicle and is based both on the existing literature and also on personal observation of forty-five cases. He sums up the etiology in the following conclusions:

1. The prostate plays a very important rôle in the etiology of tuberculosis of the testicle. It serves as a breeding-ground for the tubercle bacilli, where, for a considerable length of time, they can multiply though remaining almost inactive and causing only very slight disturbances. But under proper conditions these bacilli may with or without participation of the urinary organs, proceed along the vas deferens and infect the testicle.

2. Tuberculosis of the genitalia may occur through metastatic infection from almost any portion of the body, e. g., lungs and bones. Perhaps here the prostate plays the part of an intermediary station.

3. In a few isolated cases the infection of the testicle may occur directly from the bladder without any recognizable changes in the prostate having taken place.

4. Primary tuberculosis of the testicle, i. e., without the existence of the disease in any other organ, is very rare. The infection even in these cases probably comes from an unrecognized area of disease in the prostate.

As etiological factors trauma plays the most important rôle. Both gonorrhœa and frequent local congestion have been quoted as causative elements. The disease occurs most frequently between the ages of 20 and 30. Almost all authors are united in believing that the epididymis is affected before the testicle proper.

SELECTED ARTICLES.

THE VOMITING OF PREGNANCY.[1]

By C. S. BACON, M.D

Nausea and vomiting of pregnancy may last only a day or two, or may exist during the entire term of gestation; it may commence at any time after the first week till the end of pregnancy. Seventy per cent. of all cases of vomiting begin in the first month. Very few cases begin during the fifth and sixth months. The greatest amount of sickness exists in the second month.

Vomiting does not always occur during the first pregnancy, contrary to the statement sometimes made. In primiparæ the frequency of its appearance increases with age, so that ninety per cent. of primiparæ over 25 years of age are affected. During the first and second pregnancies more patients are sick in the early months. In the later pregnancies a greater number are sick in the later months. Women who menstruate regularly and without pain, and not too freely, have less sickness than those who are troubled with profuse or painful menstruation.

Hyperemesis gravidarum is the term applied to the condition when the patient rejects about all the food ingested. The later stages of hyperemesis are characterized by sypmtoms of starvation—that is, great emaciation and weakness; rapid pulse, with low blood pressure; faintness, frequent syncope; scanty, acid urine, with little or no chlorides, but with albumin, casts, and blood; increase in the specific gravity of the blood and increase in its alkalinity, obstinate constipation, and delirium. The temperature is also decreased from 1° to 4°, the same as in the later stages of starvation.

There are various possible ways of explaining vomitus gravidarum: (*a*) Direct vomiting may be produced by an abnormal condition of the vomiting center, due either to the irritating effects of chemical substances, toxins, etc., circulating in the blood, or to nutritional changes caused by variations in blood pressure in the medulla, or to other circulatory changes. (*b*) Reflex vomiting may be produced by sufficiently powerful impulses sent from the genital tract, causing an irritation of the vomiting center. (*c*) Vomiting may be produced by a combination of influences affecting the vomiting center both directly and reflexly. The vomiting center may be made more irritable by circulatory poisons or by nutritional changes, and at the same time peripheral sources of irritation may be created by the same factors as act on the vomiting center, or by other co-operating factors. (*d*) Still another possible cause of vomitus gravidarum is the psychopathic factor, like that which exists in the vomiting of hysteria.

---

[1] *American Journal of the Medical Sciences.*

Neither a theory of reflex irritation from the genital tract nor a theory of direct vomiting from irritation of the vomiting center suffices to explain all the phenomena. We must assume that in two-thirds of all cases of pregnancy there exists an increased irritability of the medullary centers, due wholly or in part to one or both of these two factors: (*a*) nutritional changes resulting from circulatory disturbances, (*b*) poisoning from toxic elements circulating in the blood. We must further assume that this abnormally irritable vomiting center is acted upon by afferent impulses sent from one or more of a variety of peripheral sources. Among the most important causes of reflex irritation are an incarcerated retroflexed uterus, abnormal adhesions of the uterus, pathological changes in the uterine wall resulting from endometritis, pelvic congestion, constipation, gastritis, etc. To these sources of afferent impulses we must add the psychopathic or hysterical condition, which is of especial importance in the more serious cases.

In the diagnosis of vomitus gravidarum the pathological conditions which have no connection with pregnancy, such as meningitis, traumatism, uræmia, hernia, etc., are generally easy to distinguish. The problem of diagnosis also requires the separation of the different sources of peripheral irritation. We thus have, outside of hysteria, the irritation outside of the genital tract, of the stomach, intestines, kidneys, peritonæum and from the uterus, where the trouble may be from flexion, prolapse, endometritis, adhesions of the uterus, etc.

The prognosis in emesis and in the early stages of hyperemesis gravidarum depends chiefly on the possibility of instituting proper treatment. In severe hyperemesis the prognosis also depends on the seriousness of the changes in the vital organs as the result of starvation.

Treatment.

The obstetrician is generally not called until the vomiting is quite severe. Prophylaxis here consists in preventing the graver forms. Advice can also be given for the benefit of future pregnancies. Such prophylactic management consists in the cure of anæmia, caring for digestible foods, the prevention of constipation, the correction of retrodisplacements of the uterus, and the cure of adhesions of the uterus as far as possible by massage. Especial attention should be given to the mental condition of the patient. The cases are particularly bad where a child is not wanted. Those patients who have no self-control are the most serious cases.

It will be seen from this that treatment to prevent vomiting of pregnancy should begin with the birth of the girl, as suggested by Giles de la Tourette when speaking of hysteria. Like the prophylaxis in hysteria, the entire education of the child is important. Later the masterful but kind bearing of the obstetrician is one of his most important aids. Rules of hygiene are especially important; regular eating and bathing, proper clothing, suitable exercise, enough sleep, and massage if necessary, are all to be attended to. Often account should be taken of the reading and amusements of the patient.

Treatment of Mild Cases of Vomitus Gravidarum.

The hygiene and general management, such as described in prophylaxis, are here about all that is needed. A proper condition of the bowels must be secured by the use of fruit, saline laxatives, enemata, and abdominal massage. The patient should take a cup of hot milk half an hour before arising in the morning. These measures will, in the majority of cases, prove all that is needed and a very great help.

Treatment of Hyperemesis Gravidarum, Except the Extreme Cases.

The indications are, first, to allay excessive irritability of the nervous centers. Second, combat the neuropathic condition, hysteria, by strengthening the will. Third, remove the source of peripheral irritation.

The abnormal irritability of the central nervous system, which especially interests us, may be due to the deranged nutrition or to intoxication. In any case it is best allayed by providing a steady circulation of the blood with an equable blood pressure, and good elimination by the intestinal and renal emunctories.

For maintaining a proper intracranial circulation the horizontal position is necessary, and this measure alone is the most important of all things in treating the vomiting of pregnancy, as it is in the allied condition of seasickness. The position must be constantly and persistently maintained. It is often desirable to have the head lower than the feet. All nourishment must be given without raising the head. During vomiting the patient must be turned on the side, and on no account be raised. These details are so important, and yet so often neglected, that they must be emphasized and often repeated. Absolute rest in the horizontal position also serves another important purpose, viz., it insures against unnecessary loss of strength and vital energy. In extreme cases the dangerous symptoms and the fatal results are from inanition. When there is no fresh supply of food the body has a limited store of energy, and when the usable amount, which comprises less than one-half the body weight, is consumed, the patient must die; hence it becomes very important to restrict the amount of energy consumed and avoid all waste from unnecessary movements until the possibility of a new supply is established. Just as a starving person can live longer if he remain absolutely quiet than if he make violent muscular exertion, so a vomiting gravida conserves her vital energy by remaining in the horizontal position.

Other ways of maintaining a normal circulation consist (*a*) in stimulating the cutaneous capillary circulation by topical applications, and (*b*) in hypodermatic injections of stimulants and vasomotor regulators, and (*c*) in injection into the diminished blood current of artificial serum, either through the intestinal or subcutaneous route. Peripheral vascular stimulation secured by sinapisms or by the hot-water bag to the epigastrium, or to the feet, will, of course, not be neglected. Warm clothing to prevent cutaneous capillary obstruction, as well as to preserve the heat and energy of the body, will be looked after.

The use of drugs which act on the circulation is not unattended with risk, because of unpleasant action on other organs of the body. Nux vomica or strychnine may be one of the most valuable of these agents. Whether the bitter stomachics, including the recent and now popular orexinum basicum so warmly recommended by Frommel, Rech, and others, act on the circulation or locally on the stomach, is not determined.

The value of intravenous or subcutaneous injections of salt solution in raising the blood pressure and stimulating the circulation is now well established. In all obstetric cases the subcutaneous injection may be substituted with advantage for the intravenous injection. In the hypodermatic injection there is no danger of the introduction of air into the blood vessels, and the constitutional symptoms of chill, etc., which often follow intravenous injections, are absent; moreover, the former method is much simpler and can be carried out by any one, while the latter is a surgical operation of some difficulty.

The value of artificial serum in restoring the vascular pressure after severe hæmorrhage, and thus counteracting its serious symptoms, has long been known. Its more recent use in sepsis has been based on the theory that it washes out the toxins in the blood. During its employment in these cases, however, its effect on the blood pressure has been especially noticed. As is well known, in severe cases of sepsis the pulse becomes rapid and soft, and the patient suffers from symptoms of weakened circulation as well as intoxication. It is in this condition that the *lavage de sang* exhibits its best effects, so that Tuffier, one of the most enthusiastic and diligent employers of this method, suggests that its chief value may consist in its effect on the circulation instead of its supposed action as a means of washing the blood.

If the abnormal irritability of pregnancy be due to intoxication the need of thorough elimination is apparent. This elimination is secured in ordinary cases by careful attention to the skin by means of baths and proper clothing, by preventing constipation, and by furnishing the system as much water as possible to aid the renal excretion. In hyperemesis gravidarum the urine becomes very scant. Here the subcutaneous salt solution acts very promptly and efficiently.

Nerve sedatives can be used in hyperemesis gravidarum only with great caution. If morphine is used quite large quantities must be employed, and its effects are in general bad. Chloral has cured cases that no other drug has helped.

In the management of hysterical cases it is often best for the obstetrician to plainly inform the patient that the control of the vomiting is possible by an exercise of the will, and insist that she make the effort. In many cases suggestion has been employed. It is very likely that many of the cures from Copeman's dilatation of the cervix, from cauterizing the external os uteri with nitrate of silver, from the use of electricity, etc., are due simply to suggestion. Hence in planning the course of treatment of a case of hyperemesis gravidarum it is very important to examine the patient very carefully to determine the presence of an hereditary tendency to hysteria and to search for hysterical stigmata. Having found a neuropathic element, we should not neglect the well-established principle of treatment of hysterical patients. The most important measure is separation from friends and relatives. In these cases they form the worst possible nurses. Let the patient be isolated under the care of an intelligent nurse experienced in these cases, and be subjected to a régime consisting of frequent feedings, massage, baths, etc.

To briefly sum up the suggestions regarding treatment, we would say: 1. The abnormal irritability of the nervous system, including the vomiting center, is to be allayed by keeping the patient in the horizontal position, by attention to the skin and bowels and kidney, using rectal and, if necessary, hypodermatic injections of salt solution.

2. The hysterical condition which is so commonly found present should be controlled by strengthening the will and influencing the dominant ideas of the patient.

3. All sources of peripheral irritation should be discovered and treated.

4. In extreme cases subcutaneous saline injections serve the threefold purpose of (*a*) dilating the blood and increasing vascular tension, (*b*) eliminating toxins through renal and intestinal emunctories, (*c*) furnishing two most important kinds of food.

5. Induction of abortion is never indicated. At a stage when it is safe and efficient it is not necessary, and in extreme cases it adds greatly to the danger, rarely stops the vomiting, and can be substituted by the artificial serum.

THE TREATMENT OF FIBROMYOMA OF THE UTERUS.[1]

By J. INGLIS PARSONS, M.D., DURH., M.R.C.P. LOND.,
Physician to the Chelsea Hospital for Women.

Perhaps there is no disease so varied in its manifestations as fibromyoma of the uterus. In one case a tumor is accidentally discovered, which causes no symptoms whatever; in another the patient presents every appearance of having malignant disease and is totally incapacitated for work. Of all the different symptoms which we have to combat hæmorrhage and pain are the most prominent. The former, beginning with a slight menorrhagia and gradually increasing for one or two years until in some cases it attains to a continued metrorrhagia completely exhausting the patient, is very characteristic of this disease. This can hardly be said of the pains, although with these again there is a great difference between the slight discomfort experienced by some and the severe distress complained of by others. Intermittent in character they vary with the size and position of the tumors and the pressure exercised on the nerves and structures within the pelvis and abdomen. The most common of all resembles a labor pain in a minor degree. Produced by the contractions of the uterus it may be regarded as a natural effort of this organ to rid itself of an unwelcome visitor. But it is none the less wearing to the patient and requires the earnest attention of the physician. Besides hæmorrhage and pains we find a variety of other symptoms which are more serious and are produced by the pressure of the tumors on important viscera—viz., irritable bladder and retention of urine, difficulty in defecation from pressure on the rectum, œdema of the lower extremities from pressure on the iliac veins, and loss of power in the legs from pressure on the sacral plexus. The ureters appear able to adapt themselves and nearly always escape. Hydronephrosis from the pressure of a fibroma is rare. Pelvic peritonitis is not uncommon with an effusion of lymph fixing the tumor and obscuring its shape. The uterus itself is always enlarged more or less, sometimes to an enormous size. Certain changes take place in the endometrium. There is generally glandular endometritis present, which may lead to the formation of an adenomatous polypus. In addition to this, whenever a tumor or a portion of it is submucous there is an interstitial as well as glandular endometritis with thick-walled vessels and a greatly dilated capillary network. It is this vascular condition of the endometrium or a polypus which causes the hæmorrhage.

---

[1] *The London Lancet.*

The diagnosis is usually very easy, but occasionally very dfficult. The typical case is a single woman between thirty and forty years of age or a married woman who is sterile or has not had children for many years, complaining of increasing menorrhagia and occasional pains in the abdomen. On examination an enlarged hard nodular uterus is easily felt. The diagnosis is then certain. But when there is a large, soft, elastic and semi-fluctuating mass, with the uterus pushed out of position, a difficulty will arise. Perhaps it is impossible to pass the sound and there may be no history of menorrhagia. Even in these cases a correct diagnosis may often be arrived at although the physical signs are nearly the same for a multilocular ovarian tumor. An examination under an anæsthetic should always be done in doubtful cases. If the tumor is ovarian the growth is generally more rapid. The history may show that it started on one side of the pelvis. The uterus is separate instead of forming part of the swelling and not as a rule enlarged. Menorrhagia is not a prominent symptom and the tumor is smoother than most myomata. Just as there are great differences in the size, symptoms and gravity of fibromyoma so also is there great variety in the treatment to be adopted. Each case must be considered on its individual merits. Many cases require no treatment whatever. In the early stages when the only symptom is a slight increase in menstruation medicine should be given a fair trial. Of the various drugs used the most valuable in my experience is ergot and the preparation of it which I prefer is the fresh British Pharmacopœia liquid extract given in drachm doses two or three times a day in chloroform water after food. Hydrastis canadensis in my experience is very inferior to ergot, but is worth trying when ergot fails. Nux vomica and quinine are also of some value. Bromide of potassium and Viburnum prunifolium help to restrain the loss and ease the pains. The subcutaneous injection of ergotin I have quite discarded because other measures not more painful, but more efficacious, can be adopted.

After the publication of Dr. Jouin's paper on the Influence of Thyroid Extract on Fibromyoma I gave the drug a fair trial in five cases. Four of these were women of about the age of forty years with old hard fibromata of many years' standing. No appreciable diminution in size followed after a three months' course, but in the fifth case, sent to me by Mr. Hildyard Rogers in 1896, there was a distinct reduction in size. The patient, a single woman, aged twenty years, had a large hard nodular fibromyoma almost filling the pelvis and dipping down into Douglas's pouch. The cervix was drawn up and pressed against the pubes. She suffered from morning sickness and attacks of retention which had to be relieved with a catheter. These symptoms disappeared after a three months' course of thyroid extract. The tumor distinctly diminished in size. Mr. Hildyard Rogers, in answer to my inquiries, wrote in January, 1898: "I certainly think the tumor has diminished in size and in any case it certainly has not increased, and she has been quite free from the troubles which she had before and is in fairly good health." The value of saline aperients in relieving the congestion of the pelvic vessels is not appreciated as much as it should be. A full dose of Rubinat, Hunyadi, or Friedrichshall taken every other day before breakfast so as to produce a watery evacuation gives considerable relief. When, however, the monorrhagia persists and increases in spite of medicines other measures must be considered. If the uterine canal is fairly patent a simple and temporarily efficacious proceeding is to swab it with a probe covered with cotton-wool dipped in liquor ferri perchloridi fortior. I have never seen any harm result from doing this, while the hæmorrhage is always stopped for a time. It very often happens that the probe cannot be passed up without squeezing most of the solution out at the external os. Under these circumstances dilatation becomes necessary and a better result will then follow from the use of the curette. The removal of the diseased edometrium already described produces an abatement of symptoms which will last for some months, but neither in my own practice nor in the practice of others have I ever seen a permanent result follow. The menorrhagia returns and we must either curette again or adopt some other treatment which will produce a more permanent result. When dilatation has been done we may find a small fibroid polypus in the uterine cavity which is the chief cause of the hæmorrhage. This is easily removed with the serre-nœud. But if the tumor is at all large or is sessile, or has a very thick pedicle, considerable difficulty may be encountered. Very often it is necessary to split the cervix on each side and remove the tumor piecemeal. Unless there is a distinct pedicle it is better to temporize than to attempt enucleation. The fibroma is generally firmly embedded and held by adhesions. The amount of force necessary to drag it out may even cause inversion or rupture the wall of the uterus. There is always profuse hæmorrhage.

By waiting and giving ergot or with the help of electricity the tumor will become more extruded, and can then be removed with much less risk at a later date. There will always remain a large proportion of cases in which the above measures produce no permanent result. We can then fall back on electricity. About 80 per cent. of all cases can be treated with great benefit, without appreciable risk, and without mutilation of the sexual organs and without having to lay up.

It has been urged against electricity that the tumor is not got rid of. If we once admit that some cases having no symptoms require no treatment, this argument falls to the ground, because it admits that the presence of the tumor does not matter. The female pelvis being adapted by nature to contain an enlarged pregnant uterus without interference with the general health, very well tolerates an enlargement from other causes. Although Apostoli's method is now well established it may not be out of place to describe a few severe cases treated by this method. Hæmorrhage can always be stopped if an electrode can be passed. A patient under the care of the late Dr. Edis and one of the first whom I treated came to see me last year. In 1887 she was obliged to take to her bed from continued hæmorrhage in spite of ergotin injections and previous curetting. After thirty applications the loss was reduced to normal. She came to see me in 1897, ten years after the treatment was applied. There has never been any return of the hæmorrhage. In 1895 the menopause ensued and the tumor is now of about half the size and only reaches to the level of the pubes instead of to the umbilicus.

In my last list of cases[2] I described one case where a permanent cessation of hæmorrhage had not followed. This patient came to me subsequently in 1895 and told me that the metrorrhagia had gradually left off; she has since been quite regular. In July, 1894, Sir Francis Laking asked me to see a patient, aged thirty-nine years, with profuse hæmorrhage commencing eighteen months previously. The uterus was enlarged and two small fibromata could be felt in the fundus. She was unable to leave her bed and was so ill and anæmic that her appearance suggested malignant disease. After seven applications the hæmorrhage was stopped. Eighteen applications in all were given and full doses of iron to combat the anæmia. I heard from Dr. Vernon-Jones, who took charge of her with me during the treatment, that she is now (after four years) in excellent health and has had no return of the hæmorrhage. In July, 1896, Dr. Braxton Hicks sent a woman, aged thirty-six years, to me for profuse hæmorrhage. The tumors reached to the umbilicus and also involved the cervix uteri. There was œdema of the ankle and great weakness from the hæmorrhage so that she had to be taken to a nursing home. After five applications the loss was much reduced and she was able to leave the home. Twenty-one applications were given altogether and the loss has been quite regular and normal in quantity since. This patient wrote from the country as follows: "January, 1898: I am very well and wish I could call just to show you the thoroughly satisfactory result of your treatment. It has been a very jolly autumn; life seems such a different thing when one feels very perfectly well and strong."

---

[2] *The Lancet*, Feb. 27, 1892.

Of all the cases I have treated for hæmorrhage since the publication of my last paper only one has had any return after the treatment. This was a woman, aged thirty years, who came to me in April, 1896, a patient under the care of Dr. R. H. Barkwell. There were two small tumors—one in the fundus and one in the anterior wall. After nineteen applications the loss was reduced to normal, but it began to increase again in a few months. Seven more applications were given, beginning in February, 1897. After a lapse of five months the treatment was then interrupted again for six months on account of a varicose ulcer which laid her up. Now (February, 1898), after twelve more applications, the loss is again normal and I have hopes will remain so. In addition to the arrest of the hemorrhage by electricity pressure symptoms can also be abolished or relieved in suitable cases. An instance of this was a patient under the care of Mr. Allt, of Clapham. She was a single woman, aged thirty-nine years, with a very large tumor reaching up to the ribs. She suffered from severe pains in the abdomen and left leg, with œdema of the ankles, varicose veins and slight menorrhagia. The sound passed 8½ in. She was unable to do any work and had become a chronic invalid. The treatment was commenced in 1897 and after fifteen applications all her symptoms had gone. I saw her in January, 1898; she is now able to work well, all the pains have disappeared, there is no œdema of the ankles, menstruation is quite regular and the loss is normal in quantity. On examination the tumor was reduced by 2 in. in length and very materially in girth. She was delighted with herself and told me that Mr. Allt was also very pleased.

Another patient, a woman aged thirty-five years, had suffered for eighteen months from bladder irritation and repeated attacks of detention of urine and severe pains in the abdomen. The uterus was hard and nodular, reaching half way to the umbilicus. She was admitted into the hospital on Feb. 13th, 1897. After sixteen applications her symptoms had all gone. During my absence from influenza in Januray, 1898, Dr. Berkeley, physician to out-patients, saw her at the hospital and found her very well and without any return of the bladder trouble.

In suitable cases with electricity hemorrhage can be stopped, the pressure symptoms and pain can be got rid of and the tumor reduced in size and this without the patient having to run any appreciable risk or suffer any mutilation of her sexual organs. Some cases are unsuitable—viz.: (1) fibrocystic tumors growing rapidly in young subjects; (2) old hard tumors composed chiefly of fibrous tissue; (3) associated disease of the tubes and ovaries; and (4) very large tumors. With these cases the question of abdominal section must be faced when there are severe or urgent symptoms. I must say that with the help of electricity and other treatment already described I do not often find this necessary.

There are four procedures which can be adopted, according to the case before us—myomectomy, enucleation, castration, and hysterectomy. Myomectomy is only feasible with sub-peritoneal tumors which have become more or less extruded from the uterine tissue and pesent some approach to if not a well-defined pedicle. Such cases are uncommon and when they do occur may produce no symptoms. In nearly every case the tumor is imbedded in the uterine walls and can only be got out by enucleation if we wish to save the sexual organs. This operation has been chiefly supported by Schröder, but is to a great extent discarded on account of its high mortality, higher even than hysterectomy. The cavity from which the tumor has been dug out very often cannot be properly closed up. There is consequently great difficulty in restraining hemorrhage, while the accumulation of discharges within the cavity is likely to cause peritonitis. Among practical men the choice in almost every case requiring abdominal section lies between removal of the ovaries and hysterectomy. It is unfortunate that the tumor can rarely be removed without mutilation of the sexual organs. Castration is not always feasible nor are the results always successful. Menstruation may continue and severe hemorrhage, necessitating further treatment. The risk of the operation in suitable cases is not great. The chief point in operating is not to leave a scrap of ovarian tissue behind and to take the tubes away as well. When it is not possible to remove the ovaries hysterectomy must be done. According to Pozzi the mortality of the leading operators based on over 600 published cases is 21.6 per cent. for the extra-peritoneal operation and 25.7 per cent. for the sub-peritoneal operation. Since the publication of these statistics the latter operation has been much improved and probably has a lower mortality than the former.

We must, however, bear in mind that hysterectomy still has a higher mortality than any other operation in gynæcology, while it is performed for a disease which if left alone is very rarely fatal and which will in all probability cure itself in middle age. In addition to this it cannot be done without mutilation of the sexual organs. The opinion of one of the greatest surgeons of the century and the most successful in this operation, Thomas Keith, is worth quoting—viz.: "I often ask myself the question, Does a mortality of 8 per cent. justify an operation for a disease that as a rule has only a limited active life, that torments simply, and that only for a time, though of itself it rarely kills? The mortality of an ordinary uterine fibroid if left alone is nothing approaching a death-rate of 8 per cent. I doubt even if the mortality of the extreme cases exceed this. And, after all, the great difficulty is not in doing even the worst of these operations, but in knowing what are the cases in which it is right to advise those who trust themselves to us to run the risk of a dangerous operation with all its attendant miseries. Could we get the mortality down to 5 per cent. in the bad cases—and these only are the fit subjects—then one might advise interference with a more easy mind." These words of wisdom sum up the subject perfectly. I have very often found that the public confused ovariotomy wth hysterectomy. In all cases it should be explained that an ovarian cyst is invariably fatal if left, while the operation is not very dangerous, and the sexual organs with one ovary left will continue their functions, whereas a fibromyoma is very rarely fatal if left, while the operation is much more dangerous than ovariotomy, and for a certainty means a mutilation of the sexual organs. If after these facts are made perfectly clear to the patient and she still wishes to undergo hysterectomy when other treatment has failed to relieve her, then I think we are justified in performing the operation.

SURGICAL CONVALESCENCE.[1]

WITH REPORT OF BLOOD COUNT IN TWENTY CASES.

By STUART McGUIRE, M.D., Richmond, Va.,
Professor of Principles of Surgery in the University College of Medicine; Surgeon to St. Luke's Hospital and the Virginia Hospital, Richmond, Va.

Several months ago I received a visit from an agent of the M. J. Breitenbach Company, of New York, manufacturers of Gude's Pepto-Mangan, who stated that his firm was anxious for me to test their preparation on surgical cases and to publish the results. I agreed to do so, provided I be allowed to utilize the first twenty major cases on which I operated, and that his company supplied me with the drug and paid the cost of the necessary blood-counts.

I append a report of twenty cases. Eleven of them were private patients at St. Luke's Hospital, and nine were clinic cases at the Virginia Hospital. The histories are taken from official records, augmented by the blood-counts made by Dr. M. D. Hoge, Jr., Professor of Pathology in the University College of Medicine.

When it is remembered that the patients were all confined to bed; that they were recovering from the effects of serious surgical operations; and that they were subjected to the depressing influence of hospital life, the average increase of red blood corpuscles is remarkable. Had the cases been selected, and only anæmic patients tested, the results would have been even showier.

Case I.—Miss E. G., aged 20; patient St. Luke's Hospital. Struck on back by windlass of well four months prior to admission. Laminectomy and removal of carious bone and clotted blood. Gave Gude's Pepto-Mangan 60 days. First count, 1,500,000 red corpuscles to the cubic millimeter. Second count, 3,300,000 to the cubic millimeter. Rapidly improving, and recovery assured.

Case II.—Mrs. M. K., aged 29; patient St. Luke's Hospital. Cystic disease of ovaries and chronic inflammation of appendix. Double Beattie-Tait, and appendectomy. Gave Gude's Pepto-Mangan 20 days. First count, 3,950,000 red corpuscles to the cubic millimeter. Second count, 4,000,000 to the cubic millimeter. Discharged well.

Case III.—Miss C. H., aged 22; patient St. Luke's Hospital. History of frequent attacks of hepatic colic—no jaundice. Opened the gall-bladder and removed a calculus one inch in diameter. Gave Gude's Pepto-Mangan 28 days. First count, 3,940,000 red corpuscles to the cubic millimeter. Second count, 3,900,000 to the cubic millimeter. Bile still escaping from fistula, but patient otherwise well.

Case IV.—Miss A. N., aged 32; patient St. Luke's Hospital. History of sudden peritonitis accompanied by profound sepsis. Exploratory incision revealed a pedunculated fibroid tumor of uterus, gangrenous from twisted pedicle. Myomectomy. Gave Gude's Pepto-Mangan 36 days. First count, 3,800,000 red corpuscles to cubic millimeter. Second count, 4,000,000 to the cubic millimeter. Good recovery.

---

[1] *Virginia Medical Semi-Monthly*, August 12th, 1898.

CASE V.—Miss E. J., aged 17. Patient St. Luke's Hospital. Spinal irritation from a fall. Anæmic, emaciated, and confined to bed for more than a year from contraction of ham-string muscles. Electricity, massage, and passive movements. Gave Gude's Pepto-Mangan 40 days. First count, 3,650,000 red corpuscles to the cubic millimeter. Second count, 4,425,000 to the cubic millimeter. Her menses, which had been suppressed, became regular. She fattened 20 pounds, and left the hospital walking with a cane.

CASE VI.—Miss B. T., aged 21. Patient St. Luke's Hospital. Retroverted uterus, bound down by adhesions. Opened abdomen, freed organ, and stitched it to anterior abdominal wall. Gave Gude's Pepto-Mangan 30 days. First count, 3,900,000 red corpuscles to the cubic millimeter. Second count, 3,950,000 to the cubic millimeter. Complete relief from symptoms.

CASE VII.—Master D. S. J., aged 9. Patient St. Luke's Hospital. Acute suppurative osteomyelitis of femur, tibia, and tarsus on one side and of tibia and tarsus on the other. Amputated one limb and used chisel and curette on the other. Gave Gude's Pepto-Mangan 45 days. First count, 3,720,000 red corpuscles to the cubic millimeter. Second count, 4,600,000 to the cubic millimeter. Patient discharged with well-healed stump, but incision in ankle still draining.

CASE VIII.—Mrs. H. E. W., aged 48. Patient St. Luke's Hospital. Carcinoma of cervix; vaginal hysterectomy by clamp method. Had a bad liver and an irritable stomach, and though Pepto-Mangan was tried in varying doses and at different times during convalescence, she was never able to take it for more than a day or two consecutively. First count, 3,400,000 red corpuscles to the cubic millimeter. Second count not made. Case made a slow recovery, but is now well.

CASE IX.—Master R. G., aged 14. Patient St. Luke's Hospital. Compound depressed fracture of skull from a three-pound mass of type metal falling five stories. Trephined and removed blood clot and spiculæ of bone. Gave Gude's Pepto-Mangan 21 days. First count, 3,900,000 red corpuscles to the cubic millimeter. Second count, 3,800,000 to the cubic millimeter. The loss was less than anticipated, as the boy was injured while in vigorous health. Recovery rapid and complete.

CASE X.—Miss A. E. S., aged 27. Patient St. Luke's Hospital. Indigestion, constipation, and dysmenorrhœa. Rapid dilatation of cervix. Gave Gude's Pepto-Mangan 34 days. First count, 3,900,000 red blood corpuscles to the cubic millimeter. Second count, 4,400,000 to the cubic millimeter. Bowels became regular, menstruation painless, and strength and weight increased.

CASE XI.—Mrs. W. A. M., aged 29. Patient St. Luke's Hospital. Symptoms of long-existing ovarian and uterine trouble, to which had recently been added those of inflammation of the appendix. On section, the uterus was found retroverted, the ovaries cystic, the appendix impacted and adherent, and the intestines filled with lumbricoids. The uterus was righted and stitched to the anterior abdominal wall, the ovaries and appendix removed, and later a brisk purgative expelled the worms. Gave Gude's Pepto-Mangan 18 days. First count, 4,200,000 red corpuscles to the cubic millimeter. Second count, 4,310,000 to the cubic millimeter. Recovery and complete relief from symptoms.

CASE XII.—Mrs. L. A. W., aged 44. Patient Virginia Hospital. Carcinoma of breast, with extensive lymphatic involvement. Radical extirpation of disease. Gave Gude's Pepto-Mangan 10 days. First count, 4,550,000 red corpuscles to the cubic millimeter. Second count, 4,620,000 to the cubic millimeter. Case discharged in two weeks and not heard from since.

CASE XIII.—Mrs. L. J., aged 25. Patient Virginia Hospital. Pyosalpinx following puerperal septicæmia. Opened abdomen, freed numerous intestinal adhesions, enucleated pus tubes, and removed uterus by Baer's method. Gave Gude's Pepto-Mangan 28 days. First count, 3,410,000 red corpuscles to the cubic millimeter. Second count, 4,100,000 to the cubic millimeter. Perfect recovery.

CASE XIV.—Master J. F. S., aged 11. Patient Virginia Hospital. Tuberculosis of knee and femur, with secondary infection and profuse suppuration. Amputation. Gave Gude's Pepto-Mangan 24 days. First count, 4,005,000 red corpuscles to the cubic millimeter. Second count, 4,300,000 to the cubic millimeter. Rapid recovery and marked constitutional improvement.

CASE XV.—Miss A. H., aged 25. Patient Virginia Hospital. Diseased ovaries and retroverted uterus. Double ovariotomy and ventrosuspension of uterus. Gave Gude's Pepto-Mangan 30 days. First count, 4,300,000 red corpuscles to the cubic millimeter. Second count, 4,200,000 to the cubic millimeter. Patient a hypochondriac and still complains.

CASE XVI.—Mrs. E. B., aged 36. Patient Virginia Hospital. Cirsoid aneurism of scalp and forehead causing agonizing pain from involvment of orbit. Ligation of right common carotid artery. Gave Gude's Pepto-Mangan 16 days. First count, 4,400,000 red corpuscles to the cubic millimeter. Second count, 4,100,000 to the cubic millimeter. Force of pulsation diminished and pain completely relieved.

CASE XVII.—Mr. P. S., aged 51. Patient Virginia Hospital. Suppurative osteomyelitis of tibia. Amputation of limb. Gave Gude's Pepto-Mangan 28 days. First count, 3,400,000 red corpuscles to the cubic millimeter. Second count, 3,700,000 to the cubic millimeter. Recovery, with marked improvement in general health.

CASE XVIII.—Miss N. C., aged 30. Patient Virginia Hospital. Rapidly growing fibroid tumor of uterus. Complete hysterectomy and removal of mass weighing forty pounds. Gave Gude's Pepto-Mangan 30 days. First count, 3,700,000 red corpuscles to the cubic millimeter. Second count, 3,750,000 to the cubic millimeter. Intercurrent attack of pneumonia, which retarded recovery and interfered with the regular administration of medicine.

CASE XIX.—Mrs. S. S., aged 50. Patient Virginia Hospital. Carcinoma of breast. Amputated organ and dissected out adjacent lymphatic glands. Gave Gude's Pepto-Mangan 10 days. First count, 4,200,000 red corpuscles to the cubic millimeter. Second count, 4,250,000 to the cubic millimeter. No report from case since discharge.

Case XX.—Mrs. S. J., aged 31. Patient Virginia Hospital. History of three acute attacks of appendicitis. Thin, anæmic, and nervous. Appendectomy. Gave Gude's Pepto-Mangan 26 days. First count, 2,644,000 red corpuscles to the cubic millimeter. Second count, 3,950,000 to the cubic millimeter. Gained fifteen or twenty pounds in weight and is completely well.

SIMPLE ACUTE GASTRITIS AND ITS TREATMENT.[1]

By W. D. PENNINGTON, M.D.,
French Lick, Ind.

Owing to many indiscretions in the food-habit, and otherwise, among the laity in general, the medical man is frequently called upon to administer to the sufferings of a patient afflicted with simple acute gastritis, and, in truth, much more frequently now than formerly. Since the disorder is, in a large measure, no doubt, responsible for various chronic stomachic, hepatic, renal, and intestinal disorders, many of which are obscure, it becomes one of the most important diseases with which we are familiar.

The morbid anatomy of this disease shows the mucous surface of the stomach to be overspread with a thick layer of tough, viscid mucus, beneath which exists an intense redness of the mucous membrane, most plainly marked near the edges and folds surrounding the cardiac orifice. Microscopic examination reveals a considerably reddened and swollen condition of the mucous membrane with an occasional suggillation. The tissues, both mucous and sub-mucous, are soft and œdematous, while, in many cases, the mucous membrane gives the appearance of a detached brown or black slough.

Fibrino-plastic exudation being so extensive in some cases, it is not infrequently the cause of complete occlusion of both the cardiac and pyloric orifices. When the disease has attacked the muscular tissues, we find them in a soft and gelatinous condition, while perforation may occur in extreme cases.

Recent clinical observations and scientific investigations by bacteriologists and pathologists have demonstrated beyond question that the etiology of every acute gastritis is dependent upon the toxic action of the specific micro-organism, the result of some locally irritating and corroding substance which usually gains entrance to the stomach through the medium of improperly selected or decomposing foods. An acute gastritis may be produced by the introduction into the stomach of the irritating acids and alkalies; while serious mechanical irritation is often produced by the presence of pins, glass, particles of iron and other insoluble substances. Finally, the influence of thermal irritation is frequently the active factor in its causation, as manifested by the results of hot and cold ingesta.

---

[1] *The Medical Standard.*

The clinical symptoms of this disease are manifested rapidly after indiscretion in diet or the ingestion of such agents as tend to excite the inflammatory process. As a result of this condition, the symptoms presenting are a dull, uneasy feeling over the epigastrium, soon followed by intense burning pain, with extreme tenderness over the epigastric region. Soon after the onset, there are general symptoms of giddiness, headache and prostration. The tongue is coated with a thick tenacious white fur which frequently retains the impression of the teeth; as the disease advances, the coating clears away toward the tip and edges. Occasionally there is a development of herpes labialis. The diffuse pain over the region of the stomach is followed by painful spasm of this organ. We observe the small, rapid pulse; increased secretion of saliva, and painful contractions of the œsophagus. The pallor of the face is well marked; extremities become cold, and eyes are devoid of expression.

As the pain becomes more severe, nausea and vomiting set in, the latter often violent and persistent. The vomitus consists only of the ingesta but little changed and accompanied by larger quantities of mucus. It is extremely bitter and has a characteristic and penetrating odor. With the increase of pain and tenderness, the vomiting becomes more distressing; the thirst is intense; there is a rapid rise in temperature, sometimes approaching 105 degrees; the urine is scant and high colored, and is frequently entirely suppressed. These symptoms continue and rapidly induce a condition of profound and general prostration. Hiccough is almost constantly present; the surface of the body is clammy and cold; the respirations are rapid, short and irregular; but the condition of the mind is clear and perfect throughout the entire course of the disease.

The history of a given case, accompanied by such well marked symptoms—especially those relating to the vomiting—tends to make the diagnosis easily established. Occasionally, however, it may be confounded with meningitis, hepatitis, or peritonitis. The lapse of a few hours will usually clear away any doubt which may have existed as to diagnosis.

Since the cause of this disease is, as a rule, due to the introduction of irritating substances from without, the first step in its treatment is the removal of these irritants. Unless spontaneous vomiting occurs, it should be encouraged by artificial means. Emesis should be induced when there is fulness, pain and dulness over the stomach. This is most easily accomplished by the administration of a considerable quantity of warm salt water and mustard water. If this means fails, the stomach-tube should be promptly used. Apomorphia is sometimes employed hypodermatically with the happiest results. Children, attacked with this disease, are often promptly relieved by the administration of teaspoonful doses of syrup of ipecacuanha.

Immediately after evacuation of the contents of the stomach, it should be placed as nearly as possible in a state of physiological rest. This condition is best obtained by diet. The food should be of such a nature as to furnish the most and best nourishment with the least amount of exercise to the stomach. Liquids, the best of which is well skimmed milk, should constitute the exclusive diet. Constipation, if present, may be overcome by the use of mild saline aperients; if this condition should prove obstinate, small doses of calomel may be administered. Calomel is a popular remedy, and possesses many advantages in this disease. It is a mild purgative with cholagogue properties, and is a good disinfectant. It is best administered in the form of Hydrarg. Sacchar., in doses of two to ten grains, repeated as necessary. Bicarbonate of soda usually relieves pyrosis, which sometimes becomes an aggravating symptom of the disease. From the commencement of the attack, the patient must be kept absolutely at rest in the horizontal position.

HOT-AIR TREATMENT OF JOINTS.*

Charles H. Frazzier gives the results, and his conclusions drawn, after using some 300 baths to test its efficacy. The apparatus which he describes does not differ in principle from the ordinary forms which are at present much used. The time given to the bath varied from three-quarters to one hour, care being taken to keep free ventilation for the escape of moisture; and, if necessary, the limb was wiped off during the bath to insure its dryness. The temperature of the bath averaged about 300° F., and in one instance, it registered 375° without discomfort on the part of the patient. In drawing his conclusions, he considers, first, the probable pathological conditions in the joint to be dealt with, and classifies these into (1) those of rheumatic origin, (2) those of tubercular origin, and (3) those of traumatic origin. In the rheumatic, the synovial membrane, ligaments, cartilages and periarticular structures are all involved to a greater or less extent, and consist of thickening with slight injection, and with hyperplasia of the ligamentous structures, which interferes with the movements of the joints. The cartilages are frequently rough, and present erosions. In tubercular joints, there is also a general involvement of all the structures. In the chronic traumatic forms, the articular structures are stiffened with plastic exudate, which afterwards forms a fibrous tissue and adhesions, which are the results of blood-clots or an exudation which bind together the folds of the synovial membrane or the articular surfaces.

Judging the individual case from this point of view, he considers that the gain to be accomplished may be accurately judged in the different cases, if the effects by the prolonged use of heat are regarded. The results of this heat are a diffuse hypermia of the skin showing a dilatation of the capillaries; there is usually the sensation of a numbness of the part, which he considers due to the action of the heat on the superficial sensory nerve filaments; the body temperature of the patient is about one-half to one degree above normal; the pulse is increased from about ten to twenty beats—all of which suggests an increase of blood-supply to the active part. The patient usually experiences less pain, and more freedom in movement after the application of the heat, which may be due to the anæsthetic effect of the heat on the nerve-supply of the joint. Experimentally, the physiological effect of such heat has been shown to be increased arterial tension, the elevation of blood-pressure, dilatation of the blood-vessels, diminution of the erythrocytes, decrease of hemoglobin, increase in the elimination of nitrogen, and increase in the frequency of the heart's action.

---

* *Annals of Surgery.*

The beneficial action of the heat cannot be explained on any constitutional effect where there is a diathesis, but we must consider the result as due to the local influence; and he questions the advisability of this form of treatment to any acute conditions, which are due to any form of infection, or to a diathesis; and particularly may this question be raised in those cases of rheumatic origin in which we theoretically would not wish to decrease the amount of nitrogen eliminated, or for the acute conditions of joints due to some specific form of inflammation, as for instance, tubercular, in which the advisability of increasing the hypermia would be questionable. Excluding these cases, there is left only those of traumatic origin, and it is in these that this form of treatment has proved most useful. For in this condition, after a joint has been restored to its normal activity, there is no danger of inflammation from any latent diathesis or germ. This does not, however, apply to joints (tubercular, for instance) which have been healed, in which there remains only the result of the previous inflammation.

The details of treatment in twenty-five cases are given, with the results, both beneficial and negative.

The physiological effect of the local application of hot air on general metabolism is considered separately, and the results by different observers are quoted. Experiments were made by the author upon the patients with the same end in view, and in general coincide with the results of other observers, except in regard to the elimination of nitrogen, the results in his experiments rather pointing to the decreased elimination by the treatment.

He gives the following conclusions of the physiological effects of hot air: (1) temporarily increased circulation, respiration and fever; (2) moderate fungacious local anæsthesia; (3) loss of weight, probably due to loss of water from the skin and lungs; (4) a decreased nitrogenous output; (5) the effects of hot-air baths are purely local in origin.

TREATMENT OF TUBERCULOUS ARTHRITIS BY BLOODLESS METHODS.*

Calot dealt with this subject in a paper read before the recent Congress of Tuberculosis. He said the best treatment of cold abscesses is not a so-called radical operative procedure which is often disappointing in its results, and which always causes too great a loss of substance, nor is the expectant method the best. As in the case of cold abscesses in general the treatment which most surely cures white swellings and leaves the most serviceable limb is unquestionably puncture, followed by a modifying injection into the interior of the joint.

---

*In a paper read before the recent Congress of Tuberculosis.

Of 40 cases of white swelling cure was effected in 39 by this method alone. In a single case, that of a man of 30 who had a white swelling of five years' standing, Calot had, owing to anatomical peculiarities which made the application difficult, to have recourse later to arthrectomy. The orthopædic results of the bloodless method have been extremely remarkable. Not only have the limbs kept their shape, length, and solidity, but in nearly one-fourth of the cases the joints have entirely, or almost entirely, recovered their movements. Calot looks for still better results from the orthopædic point of view, as he proposes in future to direct his efforts to the restoration of movements; hitherto he has not done this, restoration having taken place spontaneously, without any interference on his part.

The technique of the injections is the same as in the case of cold abscess; the liquid used for the purpose is also the same. Calot prefers camphorated naphthol, which he injects in small quantities, the dose being from 1 to 10 g., according to the age of the patient. He begins by injecting camphorated naphthol after emptying the joint, at intervals of two or three days. After the eighth injection of naphthol he injects ether and iodoform twice. Then, having on two or three occasions completely emptied the joint of the liquid which it continues to secrete for some time after the last injection, he applies compression with plaster over cotton wool. The period of injections lasts from twenty-five to thirty days; that of compression lasts three or four weeks, after which the patient is discharged. In the case of a dry white swelling, the first four or five injections of naphthol into the synovial sac cause its walls to secrete a brownish serosity which brings the case into line with those of ordinary swelling. When a fistula exists the duration of treatment is longer.

A cure is often effected by injections made in such a manner that the liquid remains in the passage. In connection with this subject Calot takes occasion to point out that the existence of a fistula is always attributable to the medical practitioner who has had charge of the case; such a condition ought never to be present.

Coudray (Paris) said the conservative treatment of tuberculous joint disease by rest, immobilization, and compression was not only intolerably tedious, but not always sure. Except as regards the hip, where extension is the procedure of election, the tuberculous focus should be attacked directly. For this purpose he preferred the method of "sclerogenic" injections introduced by Lannelongue. By this means he had obtained excellent results in 64 cases of articular tuberculosis, especially when he was able to intervene in the first months of the disease. Success was particularly marked in the white swellings of the knee. The method was not applicable to lesions of the hip or of the vertebral column, the diseased parts being inaccessible by reason of their depth and the uncertainty as regards the exact situation of the focus.

Redard (Paris) said that in the conservative treatment of tuberculous arthritis he employed intra-articular injections of olive oil containing 5 or 10 per cent. of iodoform. He preferred this preparation to iodoform and ether, which caused very painful distension and sometimes gangrene of the skin. He recommended that injections should be made around the joint into the fungating masses, and around and into the fistulous tracts. As regards white swelling of the knee he had obtained complete success in 60 per cent. of the cases; as regards other joints, in 40 per cent. This method better than any other, insured the preservation of movements in the affected joints. Cold abscesses were amenable to the same treatment, and Redard said that in this category he had had 70 per cent. of successes. He pointed out that care must be taken before the iodoform oil is injected to wash out the cavity with a solution of naphthol beta. Oxygenated serum prepared with phosphate of soda and bioxide of hydrogen had been successful in his hands in cases accompanied with fistulæ, in which iodoform oil generally failed. The serum was attended with the drawback that it caused distension of the cavity by liberation of gases, but the distension was less than after the use of iodoform and ether.

TREATMENT OF BRONCHITIS.

Quincke (*Berl. klin. Woch.*, June 13, 1898) draws attention to the fact that in bronchitis, as in the case of collections of pus, the object of treatment is to facilitate the draining away of the exudation. This is, however, possible in bronchitis only to a limited extent. Cough, and especially the act of vomiting, assists to this end. The same object has been attempted by means of the elastic corset, respiratory exercises, etc. Often in the early morning the bronchitic brings up a large quantity of sputum by the help of more or less persistent coughing. Quincke recommends that at this time the patient should lie as flat as possible for a couple of hours, so as to assist the draining of the secretion into the large bronchi, and hence its expectoration. The patient becomes accustomed to the position, even though with some difficulty, and can expectorate by turning the head to one side. After a few days the foot of the bed may also be raised 20 to 30 cm. In suitable cases the author says that in two to four weeks there is a considerable diminution in the sputum. This mode of treatment is adapted to cases of chronic bronchitis which have led to a cylindrical or sacculated bronchiectasis in the lower lobes of the lung. It is of no avail in cases of diffuse, and especially recent, bronchitis, with general secretion, or in cases of abscess cavities communicating laterally or incompletely with the bronchi, or of cavities with irritating contents. It may be difficult to distinguish between these conditions in practice, and this mode of treatment may help in the differential diagnosis. The number of suitable cases is not large, but at times the results are remarkable.

PROGRESS OF MEDICINE

INTERMITTENT LAMENESS.

Bourgeois has made an exhaustive investigation of this subject (*These de Paris*, 1897). It will be remembered that Charcot was the first to notice the occurrence of this condition in the human subject, although it has for some time been known to veterinary medicine. The affection consists of an intermitting painful paralysis, due apparently to arterial obliteration coming on suddenly, so that all motor power is suspended in arm or leg, as the case may be. This arterial obliteration may be due primarily to atheroma, whether occurring in an arthritic subject or in connection with alcoholism, saturnism, malaria, or senility, or, again, diabetes, which seems to cause a form of hyperplastic endarteritis, causing diminution or obliteration of the lumen of the vessel; or syphilis may be the cause of arterial stenosis. In other cases a tumor, aneurismal or otherwise, has been sufficient to induce the symptoms by pressure on the vessel. Thus, from any of these causes the blood supply to the limbs is diminished. When, therefore, the patient is at rest, there may be no inconvenience; but when any attempt is made, more particularly an unaccustomed one, a sudden attack of pain with loss of motor power may result. Thus it is that while walking the patient may suddenly become affected with lameness.

In patients affected with atheroma, diabetes, etc., the initial symptoms are slow and often insidious. Walking, for instance, is accompanied by a certain amount of fatigue, and little by little the patient remarks that he is becoming unfit to go more than a certain distance, and the more fatigued he becomes the more he suffers from pain in one or both limbs. Not infrequently the condition is thought to be rheumatism, varicose veins or some form of actual paralysis. Finally the patient finds that after a few minutes' walking he is obliged to sit down, unable to take another step.

In syphilitic cases the onset seems to be more rapid, but may show a tendency to subside, to reappear in the form of crisis. Finally there is added to the pain and inability to move the limb a sense of extreme numbness with sensations of burning and itching. These symptoms may become so marked that the limb stiffens, the tendons stand out, and intolerable cramp with marked contracture may occur. These phenomena may be limited to the toes, but as a rule they are more common in the calves and thighs, and even in the gluteal region in certain cases. The temperature of the affected limb may be lowered and the skin is often colder than that of the opposite side, presenting a blue or discolored appearance. During an attack arterial pulsation is diminished, even imperceptible. Common sensation may be unaffected, but in some cases anæsthesia has been noted. The reflex action seems unaffected. The patient, when overcome by the severity of the symptoms, lies down to rest. There is then a rapid change for the better, so that the majority of the painful symptoms disappear as if by magic. He may be able to resume walking, but this abeyance is of short duration, for in a few minutes there is a return of all the painful symptoms.

In cases untreated there is a progress more or less rapid for the worse, until finally gangrene of the limb may set in as the result of the extreme impairment of nutrition. In very many cases treatment is extremely satisfactory, for iodide of sodium or potassium with careful dieting have often completely relieved the patient. In other cases the diagnosis of aneurism followed by operation has completely relieved the disease.

TREATMENT OF FIBROIDS BY SECURING UTERINE ARTERIES.

Gouillaud (*Ann. de Gynec., et d'Obstet.*, April. 1898), also Hartmann and Fredet (*ibid.*) maintain that though oöphorectomy for fibroid is out of date, and hysterectomy much in vogue, nevertheless treatment by the simpler methods of cutting off the chief blood supply of the uterus is rational and effective.

Hartmann and Fredet are not surprised that removal of the ovaries is often ineffective, as it is the uterine and not the ovarine arteries that ought to be secured. Gouillaud treated successfully one case by simple forcipressure of the arteries for forty-eight hours. The patient was a parous woman, aged forty-five, very sickly through free hæmorrhages. The fibroid reached several inches above the pubes, but had chiefly developed in the direction of the pelvis. The operation was performed in October, 1894. A circular incision was made around the cervix, as in vaginal hysterectomy. The bladder and the posterior relations of the cervix were not very freely detached, but the lateral dissection was carried up for over two inches on each side to allow of the proper application of a long-bladed forceps. This was done, it appears, without difficulty on either side, so that the fibroid evidently did not burrow in the broad ligaments. The cut edges of the mucous membrane were sutured anteriorly and posteriorly, the gap on each side being left wide enough open to allow a strip of iodoform gauze to be placed against the blades of the forceps, which were removed in forty-eight hours. In July, 1896. the patient was examined. The hæmorrhages had ceased entirely, and no pelvic pain could be felt. The uterine cavity, which two years earlier measured four and a third inches, was now but two and a half in length.

Hartmann and Fredet report five cases of ligature of the uterine arteries through a vaginal incision. In order to get at the side of the cervix easily, a lateral incision is made on each side of the usual circular cut round the cervix and prolonged for about an inch down the side of the vagina. The cervix is freed for half an inch by scissors, then the valve of a speculum is pressed against the corresponding side of the vagina. This exposes the uterine pedicle, which is the term given by the authors, not to the broad ligament, but to the band of parametric tissue which accompanies the uterine artery. This "ligament" is denuded, drawn down and tightly ligatured. If it be thick, two ligatures should be applied. The silk must be tied very firmly, for experience and the principle well understood in the surgery of aneurism shows that the inner coat of the uterine artery must be divided by the pressure of the ligature, else the desired occulsion may not be effected. The cervix, directly the second uterine pedicle is secured, becomes in most cases very pale. The ligatures are cut short and the entire wound closed, after antiseptic washing with catgut sutures. The vagina is packed with iodoform gauze. In four of the five cases the curette was used before the operation was performed, and in two small cervical polypi were twisted off. All five cases under Hartmann and Fredet have done well. Out of forty performed after the above method by others, no deaths occurred.

TIGHT LACING AND FEMALE DISEASES.

Tight lacing is, according to W. E. Fitch (*Jour. of the Am. Med. Assn.*, Vol. XXX, No. 19, p. 1114), not the only cause of maldevelopment of the uterus and accessory organs, causing diseased conditions, but one of the chief factors. The corset exerts its greatest influence, pressure, from above the brim of the pelvis downward, constricting the abdominal walls, the lower part of the thorax, and pushing inward the costal cartilages and often the seventh and eighth overlapping. The greatest constriction occurs, the author believes, in the immediate neighborhood of the stomach, which, when distended, as after a hearty meal, produces the hour-glass stomach found at times in this class of patients. Compression is so great in most cases as to interfere with the normal peristaltic action of the intestines, thereby producing constipation. Compression in any part interferes with physiologic functions. The author concludes as follows:

1. The normal breathing of woman is, like that of man, abdominal. Tight lacing changes the type to costal.
2. The pelvic organs normally make a considerable excursion with each respiration. Tight lacing in the upright position checks this motion almost entirely.
3. Sitting or leaning forward lessens intra-abdominal pressure. Tight lacing in these positions greatly increases intra-abdominal pressure.
4. The uterus is displaced downward by tight lacing from one to two and a half inches. The pelvic floor is bulged downward and the circulation rendered sluggish.
5. Uterine development is greatest from the twelfth to sixteenth years. Tight lacing is usually commenced at this period. Maldevelopment and displacement of the uterine organs and appendages thus occur. Amenorrhœa is frequently the result of a poorly developed mucosa and its adnexa, together with faultily developed ovaries, a condition which, if neglected, often leads to atrophy or congestion with long-continued

profuse flow. All women who have practised tight lacing complain, the writer says, of pain on removing the corset, this pain being due to the effort of the organs to assume their normal position.

DIET IN THE SUMMER DIARRHOEA OF INFANTS.

S. Henry Dessau (*Clinical Recorder*) is of the opinion that in an acute attack of summer diarrhœa in a child under two years of age all albuminous and starchy foods should be withheld at once. Milk and the milk foods only tend to furnish fresh fuel for the growth of pathogenic bacteria in the gastro-intestinal tract. Give instead toast-water, made by laying in a large bowl two pieces of stale white bread toasted brown on both sides; pour on boiling water till covered; add a pinch of salt and allow to stand till cool. The clear water is then poured off into a fruit-jar and kept cool by the ice. Barley-water, made by boiling a handful of pearl barley in a pint of water for one hour or more, a pinch of salt being added, can also be prepared, and after it is cool the supernatant liquid can be poured off for use. From one to three tablespoonfuls of either of these foods can be given every hour or two for forty-eight hours if necessary. They contain a considerable percentage of nutriment which is easily digestetd, and, if properly prepared, are rarely vomited. Alcoholic stimulants may be added if necessary. These drinks should always be given cold, as they are thus more grateful to an exhausted and feverish infant.

When the vomiting and stools have improved, which, with proper therapeutics, usually occurs within forty-eight hours, nursing may be resumed at intervals of either two, three, or four hours, according to age.

In deciding the question as to the best form of food to use with artificially fed babies, it must be borne in mind that the food that is the cheapest and easiest to prepare is the best for most persons. If sterilized milk be used it should not be for longer than the summer months, on account of the tendency to produce rachitis. The modified milk is expensive and can only be obtained in the large cities.

For ordinary cases, a mixture of cow's milk, diluted one-fourth with water and containing a little cane or milk-sugar and a pinch of salt or sodium phosphate, is to be preferred. A double boiler lined with porcelain, or made of agateware, can be obtained at any good house-furnishing store; into this the prepared milk is placed and the water in the outer vessel is allowed to boil for fifteen minutes. The inner vessel is then rapidly cooled by standing in cold water, and the contents poured into a well-scalded tight fruit-jar, and kept by the ice until required for use. The entire quantity required for use during the day can thus be prepared at once.

Occasionally it will be found that some other food must be used for infants recovering from a severe diarrhœa. A combination of barley-water or barley-flour, a tablespoonful rubbed smooth in a little water, and added to the diluted milk, may then be used with good results. To insure the thorough digestion of the starch that this contains, diastase or takadiastase should be added.

Overfeeding must be carefully avoided. Every step in the preparation of the food and in its administration must be made with scrupulous cleanliness, and after each feeding, the child's mouth should be wiped out with a bit of absorbent cotton wrapped around the little finger and then soaked in a saturated solution of boric acid. If the child appears thirsty, plenty of water that has been boiled and cooled should be given rather than too much food, for water is as necessary to the child as it is to the adult in addition to the food.

TREATMENT OF GRIPPE.

Lyon (*Rev. de Therap.*) gives the following prescriptions for complications met with in grippe. For the coryza, particularly if it is marked and the discharge purulent with or without epistaxis, he employs the following:

Vaselin	2 ounces.
Boric acid	2 drachms.
Menthol	7 grains.

A little of this is placed in the nostril by the finger five or six times a day, or the following powder may be used:

Boric acid	2 drachms.
Menthol	2 grains.
Hydrochlorate of cocaine	1 grain.

A small pinch of this is snuffed up the nostril a few times a day. If irrigation of the nasal cavity by means of hot boric acid water is needed, it should be done with care lest infection of the Eustachian tube take place. For the sore throat and laryngitis he recommends hot water compresses to the throat. Inhalations of steam laden with the following drugs, which are placed in the hot water, are useful:

Alcohol (70-per-cent.)	1 ounce.
Menthol	15 grains.

A teaspoonful of this is to be added to a pint of hot water, and at the same time another teaspoonful of benzoin may be poured in and the steam inhaled. Sometimes gargling with very hot water, to which has been added boric acid, is useful, or two teaspoonfuls of the following mixture may be placed in hot water and used as a gargle:

Bromide of potassium	1 drachm.
Hydrochlorate of morphine	2 grains.
Antipyrin	30 grains.
Hydrochlorate of cocaine	2 grains.
Distilled water	2 ounces.

In the early stages of the bronchitis without expectoration, but with cough, cherry-laurel water, paregoric, tincture of hyoscyamus, aconite or benzoate of sodium are useful. The following may be prescribed:

Fluid extract of hyoscyamus	1 drachm.
Cherry-laurel water	3 drachms.
Syrup of tolu	6 drachms.
Syrup of orange flowers	6 drachms.
Syrup	4 ounces.

A dessertspoonful every two hours.

Or,

Dover's powder	30 grains.
Powdered squill	20 grains.
Quinine sulphate	30 grains.

Make into 20 cachets and take three to five a day.

Or the following may be employed:

Hydrochlorate of morphine	1 grain.
Hydrochlorate of cocaine	2 grains.
Antipyrin	30 grains.
Water	4 ounces.

Three or four teaspoonfuls a day in a little hot whiskey or rum.

For bronchitis with abundant expectoration:

Terpine hydrate	4 grains.
Glycerin and syrup	a sufficient quantity to make one pill.

Three to five a day.

Or,

Terpine	2 grains.
Benzoic acid	2 grains.
Dover's powder	1 grain.

Make into one pill and take six a day.

LONG REMISSIONS IN EPILEPSY, AND THEIR BEARING ON PROGNOSIS.

At the annual meeting of the American Neurodogical Society Dr. Wharton Sinkler, of Philadelphia, read a paper based on a study of twenty-four cases of idiopathic epilepsy, in which there had been remissions of the attacks of periods varying from two to twenty-nine years. In none of these cases was trephining done. In a few of these cases the freedom from attacks was attributable to the long-continued use of remedies, but in the majority of cases as soon as the attacks were arrested all medication was stopped, and therefore the relief from the seizures could not be ascribed to treatment. In his opinion the conclusion to be drawn from a study of the twenty-four cases presented was that epilepsy should be regarded as an incurable disease. It was encouraging, however, to find from the long intervals which had occurred in these cases that the disease was amenable to treatment, and that a sufferer from epilepsy might look forward to the probability of long remissions, in which he was as competent to fill his place in the world as if he had never had the disease. None of the authorities on the subject of epilepsy who had been consulted had expressed an opinion as to what should be considered a cure in epilepsy, nor had they paid any attention to the occurrence of long periods of freedom from the attacks, with the exception of Niemeyer and Gray. The former in a general way had said that "long remissions might occur" and the latter writer that "cases might be free from attacks for ten, fifteen, or even twenty years," and that he had known in his own practice "remissions of several years."

IRRIGATION BY SUBMERSION IN EMPYEMA.

At the recent annual meeting of the American Pediatric Society, S. A. Adams gave the following reasons in support of this method of treatment: (1) It is simpler, cleaner, easier, and in the 10 to 15 minutes that the patient is sitting in the bath he will be washed out from 200 to 300 times—not 3 or 4 times. (2) Much economy is effected in dressings, as by removing the thickened matter from the pleural surfaces there will be less irritation and the production of much less pus. (3) The baths improve the general condition of the patient, causing better metabolism. In irrigation fresh water was constantly used; but as the pus and other products were heavier than water they fell to the bottom of the tub, while the upper portion of the water remains unpolluted.

Adams reported the case of an Italian girl, aged 8 years, whose family history showed no transmissible taint. Five months ago she was said to have had pneumonia of the right side, after which she never recovered her health. The appetite was fair, the patient was constipated, cough had been almost incessant, and there was occasional fever and night sweats. An abscess on the anterior aspect of the chest at the third interspace to the right of the sternum, had appeared within five days. Emaciation was marked; the features were pinched; there was slight icteric discoloration of the skin, the cutaneous veins were distended, and the pulse was weak and thready. An abscess about 4 inches in diameter was situated just to the right of the sternum between the second and fourth ribs. Its covering was thin and its walls relaxed with each inspiration, and became tense with expiration. Respiration was accelerated, but there was no dyspnœa. There was flatness on percussion over the entire chest anteriorly and posteriorly. Vesicular breathing was absent. Bronchial breathing and voice were present anteriorly and posteriorly, but feeble and distant. Vocal fremitus was almost absent. There was bulging of the intercostal spaces on the right side.

A free incision was made into the abscess, and more than a pint of greenish pus escaped and continued to do so with each expiration. A dressing was applied, and the child was transferred to the surgical service for operation. Four days later about 2 inches of the seventh rib were resected in the right axillary line. A large quantity of pus escaped. The pleural cavity was thoroughly irrigated through the upper and lower openings, a drainage tube have been inserted into the latter. The child's condition improved slowly, and the physical signs of the normal chest were returning, but the profuse discharge continued in spite of thorough daily irrigation. After twelve days it was determined to place the patient in a bath of boiled water at 100° F. for 15 minutes, after the method of Zeman. The cleansing was complete. With every inspiration the water would run into the two openings, and, with expiration, it would return laden with pus, which would sink to the bottom. The entire body was kept under the water until expiration expelled clear fluid, the time varying from 10 to 20 minutes.

At first a bath was given daily, and then one every other day until the child recovered after two months, and was discharged six weeks later. She preferred the baths to irrigation with the syringe. Sixteen baths were given, extending over three weeks. At the time of discharge the patient was a rosy, robust girl, with a normal chest and normal chest sounds.

Having witnessed the thoroughness of this method of irrigation, and the comfort of the child while reposing in the warm bath, Adams was ready to recommend it in cases of empyema in which an opening of sufficient size to enable free ingress and egress of the water is made. It was a matter of choice which antiseptic, if any, was to be used, but care should be exercised in employing those that were easily absorbed. Boiled water, or saturated solution of boric acid, would be sufficient in most cases; the latter, however, would add greatly to the expense. The bath was prepared in the same manner as in the Brand method, and the water should be kept at a uniform temperature of 100° F. by adding warm water from time to time. There was no chilling, so the patient might remain in the bath several minutes after the water was returned perfectly clear. Adams said the method was tried in cases of tuberculous disease, but there was so much contraction of the chest that the water did not go in with any effect whatever.

NUTRIENT ENEMATA.

Brandenburg and Hupperz, of Riegel's Clinic (*Deut. Med. Woch.*, May 19, 1898), draw attention to the value of alcarnose in rectal feeding. They think that nutrient enemata are not so widely employed as they ought to be. At first eggs were used for rectal feeding, and later these were peptonized. Milk has also been much employed. Leube's pancreatic meat clyster has not been so widely used owing to difficulties in the preparation. A disadvantage in egg and meat clysters lies in the fact that decomposition may take place, and so lead to irritation of the bowel. According to Brandenburg's experiments casein is only slightly absorbed, and the absorption of fat is also small. The increased excretion of urea provides important evidence in regard to the absorption of albumens from the rectum. The amount of nitrogen in the stools is not so reliable, because there may be a long retention in the rectum of the materials used. Investigation into the metabolism has been made in Riegel's clinic with several artificial food stuffs.

The authors have used alcarnose, which contains albumens and carbohydrates in a digested state. It is thus a mixture of albumoses and maltose. The urea excretion, the amount of nitrogen in the stools, the presence of ethyl sulphuric acids in the urine, were especially attended to, as well as the general condition of the patient. In the many cases in which alcarnose was used no unpleasant effects were observed. The investigations into metabolism in three cases embraced three periods: (1) A preliminary period with known diet; (2) the alcarnose period; and (3) an after period. The details are given in tabular form. There was one case of gastric ulcer, one of arterio-sclerosis with hyperacidity, and one of neurasthenia. In all the cases there was a considerable nitrogen excretion in the urine, amounting in some instances to half the amount of nitrogen in the clyster. The same amount was never found when casein was used. There was no increase in the intestinal putrefaction. The authors conclude that alcarnose is specially suited for rectal feeding.

METHYLENE BLUE FOR THE TREATMENT OF ACUTE GONORRHOEA.

Dr. Orville Horwitz, of Philadelphia, has recently published the results obtained by him in the treatment of 105 cases of acute gonorrhœa. The dose of methylene blue which he used was two grains two or three times a day, but it is to be noted that about one-fourth of the cases taking this suffered from slight diarrhœa and strangury, under which circumstances the dose was decreased about one-half, and never did one-grain doses produce unpleasant results. Naturally the two-grain doses were more efficient when they were well borne by the patient. In all instances the urine became a deep blue hue, owing to the drug being eliminated by the kidneys. Dr. Horwitz states that in four or five days the pronounced purulent discharge was changed to a slight mucoid excretion with a modification in all the inflammatory symptoms. The best method of administering methylene blue, in Dr. Horwitz's opinion, is in the following formula:

℞	Methylene blue	2 grains
	Oil of sandalwood	3 grains
	Oleoresin of copaiba	3 grains
	Oil of cinnamon	1 drop

Mix. Dispense in capsule. One dose.

In addition to this capsule internally permanganate of potassium solution was employed for irrigation purposes, beginning with a strength of 1:2000 and gradually increased until the preparation reached 1:1000. Dr. Horwitz concludes his paper by the following summary, which expresses his opinion as to the value of this method of treatment:

1. That methylene blue is a germicide of great value in cases of acute urethritis, due to the presence of gonococci.
2. That it will not abort the disease, but will materially shorten its duration.
3. That it markedly lessens the tendency to complications.
4. That it is not to be employed in the treatment of acute urethritis, unless a bacteriologic examination demonstrates the existence of gonococci.
5. That the remedy should be employed as soon after the infection as possible.
6. That the proper dose with which to begin treatment is one grain three times daily, to be increased to two grains if the remedy is well borne.
7. That the beneficial action of methylene blue is enhanced and the duration of the disease is shortened by combining it with copaiba, sandalwood and salol.
8. That the injections of potassium permanganate by means of a hard syringe, or if possible by irrigation, administered in the early stages of the disease, and followed during the period of decline by an astringent injection, have a marked tendency to lessen the duration of the malady.

9. That methylene blue always has the effect of turning the urine to a deep blue color. Of this fact the patient should always be informed to prevent unnecessary alarm.

10. That menthylene blue is of no service in cases of non-specific urethritis.

GASTRIC AND INTESTINAL ANTISEPTICS.

Riegner, of Senator's clinic (*Deut. Med. Woch.*, June 23, 1898), first refers to the various views held as to the possibility of disinfecting the contents of the alimentary canal. He has himself continued the experiments of Strauss upon gastro-intestinal antiseptics. Stomach and intestinal contents were placed in graduated tubes, and grape sugar in equal amounts added. The antiseptic was then added in known quantity in watery or alcoholic solution, and more rarely in powder form when not soluble. The author gives details of a number of experiments. As regards gastric antiseptics, he concludes that sodic salicylate, $\frac{1}{8}$ per 1,000, menthol $\frac{1}{2}$ to 2 per 1,000, and thymol $\frac{1}{8}$ to $\frac{1}{2}$ per 1,000 have relatively high disinfecting powers. A medium disinfectant action is possessed by chinosol, chloral hydrate, soluble silver, and actol, and only a slight one by even large doses of steriform and ichthyol. As regards intestinal antiseptics, chinosol and thymol arrest fermentation in $\frac{1}{2}$ per cent. solution, and delay it in $\frac{1}{6}$:per cent. Actol, bismuth salicylate, or bismuth β-naphthol arrest it in 1 per cent., and delay it in $\frac{1}{4}$ per cent. Resorcin, chloral hydrate, silver, benzo-naphthol, and steriform are inferior to the agents above-mentioned.

From experiments it becomes obvious that antiseptics behave differently in relation to the stomach and intestine. Thus menthol is an excellent gastric, but an inferior intestinal, antiseptic. These questions cannot be definitely settled by laboratory experiments, but must be determined by practice. Thus a disinfectant is useless if too poisonous. Again, a gastro-intestinal antiseptic must be insoluble. This insolubility is also a guarantee against intoxication. Extensive contact with the intestinal contents is desirable, and hence the antiseptic should be given in frequent and small doses. In motor insufficiency of the stomach salicylic acid, menthol, and thymol have been shown to be of clinical value by Strauss.

Among intestinal antiseptics Strauss has shown menthol to be worthy of recommendation. Thymol is inferior to menthol, and must be given on a full stomach to avoid irritation. Actol must be given in capsules or pills, which are not soluble in the stomach. Both bismuth salicylate and bismuth β-naphthol are worth trying in flatulency. Sodic salicylate and chinosol are too soluble. Washing out the stomach and bowel is an important measure. Salicylic acid, menthol 0.25 g., thymol 0.1 g., may be added to nutrient enemata. The author comes to the conclusion that these antiseptic agents have a practical if somewhat restricted value.

A NEW METHOD OF DISINFECTING ROOMS WITH FORMALIN.

Schlossmann (*Berlin. Klin. Wochenschr.*, June 20, 1898) describes an apparatus for the disinfection of rooms by formalin, which he and Walther have devised, and which gives a far more perfect disinfection and in a much shorter time than any apparatus yet brought forward. Steam from a kettle of boiling water passes into the reservoir full of a mixture of ten parts of forty-per-cent. formaldehyd (formalin) and one part glycerin. From this reservoir throuh four escape pipes there passes off a vapor composed of formalin, glycerin, and water. Ten minutes after the apparatus is set going in a room 16 x 14 x 10 feet the fog is so dense that it is impossible to determine if an incandescent lamp in the center of the room is lighted. In less than three hours all germs of whatever sort that were in the room will have been killed. The advantages claimed for this method of using formalin are:

1. Absolute sterilization.
2. It is not necessary to paste up tight the windows and doors; on the contrary a little draft is of benefit.
3. The apparatus is so constructed that it produces currents of air and so insures the sterilization of all the air in the room.
4. The maximum time required is three hours, as compared to twenty-four hours required by the Trillat or Schering methods.
5. The apparatus which is made by Lingner of Dresden, costs little to operate; and like other formalin methods of disinfection it possesses the advantage that all articles may be left in the room without fear of injury.
6. It is easy to use and as it never has a pressure of more than half an atmosphere, there is no danger of an explosion.
7. The fog of glycerin-formaldehyd—a combination which the writers call glycoform—is heavier than the air. By the energy of the apparatus it is driven against the ceiling of the room and then sinks slowly to the ground, bringing with it mechanically all the germs in the air.
8. The disinfecting power of the apparatus is only limited by the penetrating power of the gas. Wherever the gas penetratese so far will there be sterilization.

At the end of the disinfection the windows are opened and the room is aired. Enough ammonia is sprinkled about to neutralize the smell of the formaldehyd, and in a short time the room is absolutely odorless. The method is simple enough to one who undestands it, but it is better for the sake of thoroughness that it should not be turned over to the hands of the householder, but should be carried out by some one who has had special instruction in the method.

METHODS AND INDICATIONS FOR EMPLOYMENT OF NORMAL SALT-SOLUTION.

Dr. P. Findley concludes an article on the above subject with the following summary (*Med. Stand.*, April, 1898):

1. Where normal salt-solution is indicated, enteroclysis is the method of choice, providing there is time to await its effect.

2. The body-temperature, vascular tension, renal, cutaneous and intestinal secretions, are influenced in direct ratio to the temperature of the injected fluid.

3. Injected solutions of high temperature, however, may lower the body-heat by promoting the excretions.

4. A solution of 60° to 70° F. given within the colon, will first stimulate and later depress the blood-tension and the secretions of the skin and kidneys. It is therefore to be used with caution, particularly in renal insufficiency.

5. In the subcutaneous method we have all that is required, when immediate effect is desired, except where abdominal section may indicate intraperitoneal injections; where the withdrawal of a quantity of blood has made it possible to give intravenous injection with the least possible loss of time; and where the serous cavities have been relieved of a quantity of fluid which may be replaced by normal salt-solution.

6. As a rule, no time is gained by the employment of the intravenous method, which should only be used when preceded by venesection for the withdrawal of a quantity of blood.

7. In intravenous injections it is possible to cause death from too great dilution of the blood, an accident quite impossible in hypodermoclysis or enteroclysis.

8. Normal salt-solution is indispensable in the treatment of alarming hæmorrhage, and is of great value in the treatment of the various toxemias, and in renal insufficiency.

9. After the removal of a large quantity of fluid from the pleural cavity, the salt-solution may be injected into the cavity as a substitute for the effusion, and will thereby lessen shock and relieve septic infections.

10. In cholera and cholera infantum, normal salt-solution is invaluable as a substitute for the lost serum.

11. Venesection with the withdrawal of a quantity of toxic blood is indicated in toxemias, where the patient is plethoric, and should be fol-
and favors their elimination by stimulating the excretory organs.
lowed by intravenous injections of an equal or greater amount of normal salt-solution.

12. In hæmorrhage normal salt-solution maintains the circulation by adding to the volume of the circulating fluid which would otherwise stagnate in the veins, because there is not sufficient volume for the heart to
13. In toxemias normal salt-solution dilutes the toxins of the blood
propel.

A STUDY OF THE DIFFICULTIES OF DEFECATION IN INFANTS.

At the recent annual meeting of the American Medical Association Dr. T. C. Martin read a paper upon the difficulties of defecation in infants, in which he stated that it is generally recognized as a fact that infants and young children strain at stool. The infant and young child strain violently at expulsion of semi-solid fæces because of the imperfect development of the anatomic features concerned in mechanism of defecation. These are:

I. The infant's lower gut is muscularly deficient.

II. Its mobility within the abdomen is obstructive to defecation.

III. The rectal valves are obstructive.

IV. The infant's anus not being sufficiently expansible, is, also, obstructive to defecation. Records of post-mortem observations were read and specimens of recta exhibited which proved that:

I. The muscular development of the adult rectum and lower sigmoid is plainly apparent, and a deficient muscularity is observable in the infant specimens. In the infant gut the intrinsic power of peristalsis is not present in that degree necessary to it as a component expulsory factor.

II. The meso-peritoneum of these parts in the adult is, relatively, considerably shorter than that in the infant. The adult gut is slightly tortuous; that of the infant is much augulated. Mobility and angulation of the infant gut conspire to obstruct the passage of formed fæces.

III. The rectal valve appears to bear the same proportion to the gut in both adult and infant, but when the difference in muscular development in the two is noticed, the disproportionate great resistance of the valve in the infant rectum becomes an obvious fact.

IV. The anal expansibility is adequate in the adult, but because of the greatly contracted bony pelvic outlet it is deficient in the infant, and constitutes an obstinate obstruction to the passage of semi-solid fæces.

Co-relative to these facts, it must be recognized that the adult rectum has resident within its own wall a powerful expulsive, muscular mechanism; that in the adult the shortening of the mesentery holds the upper rectum steady under the applied auxiliary forces; that in the adult the flexures of the sigmoid are not necessarily obstructive, though in a desirable measure, retardative; that in the adult the incline of the lower sacrum and coccyx behind, and the development of the uterus and prostate and their inherent supports in front, provide the lower adult rectum with a firm funnel-like arrangement which guides the fæces directly upon the os internum of the anus; that the rectal valves may divide the fæces into portions to facilitate their separate successive discharge, and finally, in sequence, that the physiologic descent of the entire pelvic floor reduces this last possible resistance to the minimum in adult defecation.

Infantile straining, the ruptures and prolapses, constipation, retention of fæces, and the multitudinus consequent ills demand study, and this investigation forces the conclusion that the individual's escape is ultimately assured by the process of development, but that, for the normally-formed infant, the physician will find the solution of the problem of difficult defecation in the liquefaction of the fæces.

CEPHALALGIA IN CHILDREN.

A. Nil-Filatow (*Med. Mod.*) says that headache in young children is often unnoticed until it reaches such a degree of severity that it is manifested by their holding their heads, pulling on their hair, or swinging their heads from side to side. Cephalalgia is very frequent in children over five years of age, and may be divided into acute and chronic varieties. Under the acute form are to be classed headaches which have lasted a few days only. Chronic headaches are habitual, permanent, or are repeated at irregular intervals. When a child suffers from acute cephalalgia accompanied by high fever, it is important to ascertain whether the headache depends upon the fever or whether it marks the onset of meningitis. In meningitis and hydrocephalus the headache is characterized by intensity out of proportion to the temperature, and persistence without remissions. A severe and unusual headache, with a temperature of 38° (100.4° F.) to 38.5° (101° F.), is almost pathognomonic of meningitis. Intense headache with a temperature of 40° (104° F.) does not point to meningitis, even when there is vomiting.

Intense headache with very slight fever, during the course of coryza, may be due to extension of the catarrhal process to the frontal sinuses; in this case the pain would be localized anteriorly. Cephalalgia has especial significance when it occurs in a child suffering from acute nephritis, indicating, as a rule, the beginning of uræmia, especially when accompanied by vomiting. Acute headache may be situated in the soft tissues of the cranial integuments, as in rheumatism or inflammatory processes. In the latter case the pain is increased by pressure. In rheumatism of the epicranial aponeurosis there will be coexistent pain in the muscles of the neck, which is increased by a frowning motion of the eyebrows.

Chronic cephalalgia may be due to severe anatomical lesions of the brain, as chronic hydrocephalus, intracranial tumors, etc., or it may occur idiopathically. When there is chronic disease of the brain we shall have other symptoms, as vomiting, weakening of the intellect, paralysis and paresis of the ocular muscles (strabismus, ptosis, amblyopia), local or general convulsions. The headache has a tendency to increase in intensity.

In the case of circumscribed lesions the pian is limited to some special portion of the head.

Migraine is largely due to heredity. The pain always occurs in the form of special attacks, is situated upon one side of the head (usually the left), usually ends in a few hours with an attack of vomiting, and is followed by sleep. These attacks are repeated at intervals of a few days, weeks, or months. They rarely occur two days in succession; they come on without appreciable provoking cause or follow some slight fatigue. Should all family history exclude the possibility of heredity, it is likely that instead of being migraine the headache is a reflex phenomenon (from the nose) or symptomatic of anæmia, cerebral affection, etc. Migraine is usually amenable to treatment by antipyrin or antifebrin. In neuralgia of the orbital nerve the child usually points to the infra-orbital region as the seat of pain, and pain is increased by pressure upon the infra-orbital foramen.

Headaches may also come from disorders of nutrition, and are then irregular and not localized. A diagnosis is reached by exclusion of other causes and by the presence of anæmia or chlorosis; the anæmia itself may be dependent upon catarrh of the stomach, worms, nephritis, uræmia, and onanism. In children of from 10 to 16 years we often find a form of headache localized in the front or generalized over the whole head, and combined with other signs of neurasthenia, irritability, melancholy, tears, etc. This is headache from overwork, school headache, "growing headache," and is especially characterized by an inability to study. In slight cases it occurs only after great mental fatigue, in more severe cases after the least mental effort, even the reading of interesting stories. Complete mental rest for six months at least is the only efficacious treatment. This form of headache is easily confused with that which comes from some ocular disorder, which can be cured only by the wearing of appropriate glasses.

CHILDREN AND SLEEP.

Dr. H. Gillet (*Annales de la Policlinique de Paris,* June) says on this subject: The need of sleep in infancy varies with the age of the subject. At birth, and during the early months, the nursling sleeps and suckles only. At the end of the first month it begins to remain awake for short periods, gradually increasing in duration. Up to three years or thereabouts the custom of a daily siesta after going out should be maintained. Up to ten or twelve years the hours of sleep exceed the waking hours. The sleeping time necessarily decreases as the age advances, according to Bergeron and d'Heilly, in the following ratio: Up to seven years, from ten to ten and a half hours; ten years, from nine and a half to ten hours; twelve years, nine hours; fourteen years, eight and a half hours. After that age the division of the day into three eight-hour periods becomes good. The midday siesta, except in southern countries, is no longer to be allowed. Whatever theory of sleep is held, it is none the less incumbent on the hygienist to see that the organism has an imperative physiological need of this repair of forces. Observation shows us the duration, the hygienist prescribes the measures necessary to insure this sleep. The infant, even when very young, should be habituated to sleep at night naturally. To rock and to sing to it are evil measures. Rocking children must be prohibited as conveying to the brain a vibration which is not without danger. Singing is at least inconvenient, if it does not render every one the child's slave. Care must be taken to prevent the contracting of other bad habits also, such as sucking something, etc. To insure sleep to the child the following rules should be observed: 1. The child should always be put to bed at the same hour. 2. Relative quiet and darkness are requisite in the child's room; relative only, since it is necessary that the child should sleep in spite of the presence of other people who are not making much noise. A strong light should not be allowed to fall directly upon the face of the child. 3. The temperature of the room should be moderate, since excess of either heat or cold is hurtful, though less so if the child is well protected. 4. Aeration should not be inconveniently confined—there must be no curtains shutting off the air. 5. Waking should take place at nearly the same hour, or at least the child should not be so aroused as to cause any great variation from its habitual time of repose. The sleep of young children should not be cut short under any pretext whatever, until it has overreached the usual time; but it is often requisite to allow an overplus of sleep demanded in consequence of growth. Sleep and proper nourishment are the best repairers of over-fatigue, but this must not be allowed to induce a slothful habit, for excess of sleep retards general nutrition.

One other point in Dr. Gillet's article deserves notice, and that is his commendation of the English custom of setting aside in the house an apartment or "nursery" for the children. It is not good either for grown-up people, or for the children themselves, that the latter should be "all over the house," or that they should spend too much time in association with grown-up folks.

SENSIBILITY OF THE FEMALE URINARY AND GENITAL ORGANS.

Calmann (*Archiv fur Gynchol.*) publishes a large number of experiments which are of considerable forensic importance. The sense of localization in the urogenital apparatus of women is incompletely developed, and the subjects experimented upon were rarely able to differentiate between the bladder and vagina. Thus the subjects were not certain whether an instrument was placed in the urethra or vagina. Calmann could fill the vagina with cotton containing large quantities of shot, without the knowledge of the subject. In the urethra the temperature sense is strongly developed, to a small degree in the vagina, while in the cervix and interior of the uterus it is completely absent. The urethra and interior of the uterus are quite sensitive to pain, the vagina and cervix but slightly. These investigations prove that the statements of women regarding criminal or therapeutic manipulations, if confined to the urogenital apparatus, are unreliable, and if unsupported by other evidence they are an insufficient basis for criminal action.

THERAPEUTIC HINTS.

The Uses and Dose of Apomorphine.—Dr. Robert H. Babcock (*American Medico-Surgical Bulletin*, June 10) corrects from his own intimate personal knowledge of this drug many erroneous impressions current concerning it. Patients, he says, can tolerate very much larger doses than is commonly supposed, and by the mouth as much as two grains at a single dose may be given without nauseating. It is more apt to cause emesis when taken in the morning before breakfast.

The combination of a small dose of apomorphine, however, with other nauseating expectorants increases their efficacy. Dr. Babcock says that its effects are so satisfactory and it is so easily administered in pill or capsule, when for any reason it is not desirable to prescribe a syrup, that it has become his favorite remedy and main reliance in the treatment of both acute and chronic bronchitis. Combined with codeine or morphine, troublesome cough can be allayed without at the same time arresting bronchial secretion; indeed, the sputum will be increased, while at the same time the cough is moderated in violence and frequency.

The author's usual dose, administered by the mouth, appears to be about a fifth or a quarter of a grain, up to one-half, and sometimes to one grain, every three or four hours. In the case of a nursing baby a sixtieth of a grain every four hours in syrup of wild cherry bark was given with great effect in constant dry cough. The author calls special attention to the necessity of obtaining pure morphine (and recommends Merck's), as he has seen the soporific and other effects of morphine induced by impure specimens. It must not be prescribed in mixture with potassium iodide.

Hæmorrhage from the Ear.—A child, aged five years, had been suffering from a follicular tonsilitis; this was apparently clearing up when, without any warning hæmorrhage took place from the right ear, the amount of blood lost being very great. An hour later she was blanched, deeply collapsed and the nightdress, pillow and bedclothes were widely stained with blood. On examining the ear after washing out the clot W. H. Brown (*Lancet*) failed to detect the source of the bleeding; the examination of the throat gave no information. The meatus was then packed with iodoform gauze, a pad and bandage being put on; this was left in position for four days, during which time there was no sign of any bleeding and the child appeared to recover in a measure. On the packing being taken out a small quantity of pus escaped from the meatus; it had no smell. Four hours after the plug was removed another hæmorrhage took place, more copious than the first one, and when I saw the child her condition appeared to be hopeles. The radial pulse could hardly be felt, the surface was cold, the mucous membranes were pale, and the child was restless and partially delirious. There was now present on the right side of the pharynx a swelling pushing the right tonsil over towards the middle line; this swelling did not pulsate. As it seemed most likely that the source of the bleeding was the internal carotid, and as it was quite clear that the child must die if another bleeding took place, I decided to tie the common carotid then and there. The child was put under ether and I ligatured the common carotid at the point of election. The subsequent progress does not call for special comment, the child made a good but somewhat tardy recovery and is now quite well. Hæmorrhage from the external ear is not a common occurrence—at any rate not in such formidable quantities as now related. Fortunately for the child, we have had no opportunity of making a careful dissection of the parts involved to ascertain the exact cause of the bleeding. I venture to suggest that there had been some inflammatory change in the bone surrounding the internal carotid artery, causing erosion of the walls of that vessel. I think now that it would have been better to have ligatured the vessel after the first bleeding rather than to have waited for a second attack and in any future case I shall adopt that plan.

Capillary Puncture of the Heart.—Bégouin (*British Medical Journal*) refers to the well-known fact that entrance of air into the jugular vein causes rapid death by asphyxia. This asphyxia is due to an accumulation of air in the right ventricle. By experiments on dogs and rabbits he finds that, when air has been insufflated into the jugulars, and asphyxia, which would probably prove fatal, has come on, if the air contained in the right ventricle be aspirated through a capillary puncture the symptoms of asphyxia disappear gradually as the air is drawn off, and the animals soon recover completely. The author believes capillary puncture of the ventricle would be equally successful in man whenever this accident happens, as in the course of an operation.

Sanitation as an Investment.—In the United States alone the loss through typhoid fever and other water-borne diseases is beyond ordinary comprehension. It is not far wrong to estimate the number of persons annually thus afflicted at 300,000, of whom 50,000 die. At the lowest legal valuation set upon human life the enormous total of $278,000,000 is found to be the equivalent cash loss. If by improvement of water-supplies the death-rate could be reduced eighty-five per cent., $236,000,000 would remain for this purpose and this amount at five per cent. annually for interest and sinking-fund charges for forty years would justify an outlay of no less than $4,054,671,000 for water purification.

BOOK REVIEWS.

A TEXT-BOOK UPON THE PATHOGENIC BACTERIA. For Students of Medicine and Physicians, by Joseph McFarland, M.D., Professor of Pathology in the Medico-Chirurgical College, Philadelphia, etc. With one-hundred and thirty-four illustrations; second edition, revised and enlarged. Philadelphia: W. B. Saunders, 1898. $2.50 net.

The science of bacteriology is so vast that it is impossible to cover the whole field in a text book suitable in size and in the character of its contents for the uses of the medical student. The author of the work under review has therefore been compelled to omit from it all reference to the higher orders of parasites as well as the majority of the non-pathogenic bacteria. Some of these, however, so closely resemble true pathogenic bacteria that it has been deemed necessary to give detailed descriptions of them as a basis for their comparative study, and in the selection of these the author has shown his intimate knowledge of the practical difficulties which confront the worker in this field.

The author informs us that his aim has been to describe only such bacteria as can be proven pathogenic by the lesions or toxins which they engender, and while considering them, to mention as fully as necessary the species with which they may be confounded. He has frankly borrowed the larger number of the illustrations used, giving due credit therefor.

That there is a field for the volume is shown by the fact that a second edition has been demanded in the short time which has elapsed, some two years, since the publication of the first edition.

ATLAS AND EPITOME OF OPERATIVE SURGERY, by Otto Zuckerkandl, Privatdocent in the University of Vienna. Authorized Translation from the German. Edited by J. Chalmers Dacosta, M.D., Clinical Professor of Surgery in Jefferson Medical College, Philadelphia; Surgeon to the Philadelphia Hospital, etc. With twenty-four colored plates and two hundred and seventeen illustrations in the text. Philadelphia, W. B. Saunders, 925 Walnut Street. 1898.

We have pleasure in directing the attention of our readers to two further contributions to the series of Lehmann's "Handatalanten" which are being reproduced in English by W. B. Saunders, the medical publisher of Philadelphia. The value of the series is well maintained in these two later volumes, though, treating of surgery and of the larynx as they do, there is not so great a scope for utilizing colored plates as in the earlier volumes treating of syphilis and skin diseases.

The epitome of operative surgery is intended as an elementary work for students in this subject. For this reason those groups of operations whose practice upon the cadaver forms the basis of practical instruction are described in detail and illustrated in their most conspicuous aspects. Other operations, whose performance falls largely to the lot of the skilled surgeon, and whose practice upon the cadaver appears less important, are described concisely.

Dr. Zuckerkandl requires no introduction to English-speaking readers. In this atlas he has laid down the rules and methods of surgical procedure with the clearness that springs from definite knowledge and the emphasis that is born of conviction. He describes lucidly and tersely the operations of modern surgery, and in a manner that fits the book to be a guide to the surgeon who operates upon the living or to the student who works upon the cadaver, the verbal descriptions being reinforced and illuminated by a large number of excellent original cuts. The aim of the translator has been to portray the spirit rather than the exact words of the author. In a very few places the editor has added notes that are explanatory in their nature, and are not to be considered as portions of the text.

Atlas and Abstract of the Diseases of the Larynx, by Dr. L. Grunwald, of Munich. Authorized Translation from the German. Edited by Charles P. Grayson, M.D., Lecturer on Laryngology and Rhinology in the University of Pennsylvania; Physician-in-charge of the Throat and Nose Department, Hospital of the University of Pennsylvania. With one hundred and seven colored figures on forty-four plates. Philadelphia, W. B. Saunders, 925 Walnut Street. 1898.

In the preparation of this little Atlas of the Diseases of the Larynx the author has adopted the same plan as that pursued in his earlier Atlas of the Diseases of the Nose and Throat. Its object is to help the beginner in the art of observing and interpreting. As, however, a knowledge of the previous history of the disease and the examination of contiguous as well as more distant organs are indispensable for diagnosis, especially in this region, each picture is accompanied by the necessary data in the form of a short history.

By adopting this method the author believes he has also presented a valuable aid to the physician who has few opportunities of seeing diseases of the larynx and yet wishes to be able to recognize them. At the same time a clearer mental image is obtained which may compensate for possible imperfections in the actual picture.

The illustrations are arranged solely according to external appearances, without regard to the nature of the disease; partly in order to train the eye by comparing conditions similar in appearance, though differing widely in their true nature, and partly to make it easier to find the illustrations which most resemble the particular case to be diagnosed. Many well-known pictures, as for instance, that of diphtheria, are therefore omitted.

To prepare the student for this course in the theory and practice of diagnosis a short, systematic abstract has been added.

In the author's opinion, a knowledge of the histology of morbid processes is most essential to a proper understanding of them. Twelve plates showing the most important elementary alterations have accordingly been devoted to this purpose. This department of pathology, which has been somewhat neglected in the text-books, affords the best means of arriving at clear, definite ideas.

Figure 1 is taken from Luschka's work on anatomy, two illustrations of cadavers from the well-known atlas by Bollinger. All the other illustrations were prepared by the painter, Mr. Keilitz, from sketches or preparations by the author, and possess distinct artistic as well as mere illustrative merit.

The work exemplifies a happy blending of the didactic and clinical such as is scarcely to be found in any other volume upon this subject with which we are acquainted. The beginner will find here a series of pathological conditions, illustrated with a remarkable fidelity to Nature, that it would undoubtedly require him a number of years to duplicate in actual practice; while the veteran, however rich his experience, will note a precision, a finesse in diagnosis that cannot fail to be instructive and, perhaps, even inspiring.

Lectures on Tumors, by John B. Hamilton, M.D., LL.D., Professor of Surgery, Rush Medical College and Chicago Polyclinic; Surgeon to Presbyterian Hospital; Consulting Surgeon to St. Joseph's Hospital, etc., etc. Third edition; 21 illustrations. Pp. xi-143. Philadelphia: P. Blakiston, Son & Co. $1.25 net.

This little monograph covers its special field in a very satisfactory manner, though the field is a limited one, as is clearly defined by the author. It consists of a series of lectures on tumors, giving only the general pathology, clinical history, and the treatment of neoplasms, and unlike some of the more pretentious volumes issued since the appearance of the first edition, is not a work on operative surgery. It was primarily intended for use as a text-book and it serves its purpose admirably.

The Declining Stage of Acute Bronchitis in Old Persons.

Patton, *Clinical Review*, recommends the following mixture for use when the acute symptoms are past, but the cough, with moderate secretion, still persists:

Sodium iodide	90 grains.
Codeine sulphate	5 grains.
Fluid extract of grindelia	6 drachms.
Syrup of Tolu . . . enough to make	3 ounces.

A Lotion for Itching of the Scrotum.

The *Gazette de gynécologie* gives a prescription of Leistikow's as follows:

Corrosive sublimate	$4\frac{1}{2}$ to $7\frac{1}{2}$ grains.
Alcohol	375 grains.
Chloroform	5 drops.
Distilled chamomile water	375 grains.
Cherry-laurel water	750 grains.

FAVORITE PRESCRIPTIONS.

FOR MIGRAINE.

Caffein citrat	grs x.
Kryofin	grs. x.
Sacch. lact.	ʒ ii.

M. ft. in Pulv. No. x.

Take one powder every two hours as needed.

TREATMENT OF TINEA TONSURANS.

Sheffield (*New York Medical Journal*, May 14, 1898) claims that by the following method every case of ringworm of the scalp may be cured in from three to six weeks. The hair is to be clipped close to the scalp, and the following mixture thickly applied by means of a painter's brush, once every day, for five successive days:

Acidi carbol	
Ol. petrolei	āā 65.
Tinct. iodi	
Ol. ricini	āā 110.
Ol. rusci	q. s. ad 500.

On the sixth day the application is to be wiped off with a rag dipped in olive oil, the hair clipped again, and the scalp washed thoroughly with green soap and a soft nail-brush. This process is to be repeated regularly for three or four weeks, and is to be then followed by the application of a ten per cent. sulphur ointment for a few days. Finally, the following lotion is to be used for two weeks:

Resorcin	
Acid. salicylic	āā 16.
Alcohol	120.
Ol. ricini	q. s. ad 500.

FOR VOMITING OF UTERINE ORIGIN.

Lutand (*Bull. Gen. de Therap.*) recommends the administration of fourteen to twenty drops of the following mixture before each meal:

Menthol	gr. v.
Elixir pepsinæ	℥i.
Tinct. Opii	℥ii.

ACUTE DIARRHŒA.

The following is credited by the *Philadelphia Medical Journal* to Dr. Burney Yeo:

Sodium bicarbonate	60 grains.
Aromatic spirit of ammonia	3 fluidrachms.
Compound tincture of cardamons	6 fluidrachms.
Cinnamon water	6 fluidounces.

Dose: Two tablespoonfuls every two or three hours.

FACIAL ERYSIPELAS.

The following is credited to the *Presse médicale:*

Carbolic acid	1 ounce.
Tincture of iodine	1 ounce.
Alcohol	1 ounce.
Oil of turpentine	2 ounces.
Glycerin	3 ounces.

The lesions to be painted with this every two hours and covered with aseptic gauze.

THE TREATMENT OF BOILS.

Burlureaux (*Indépendance médicale*) incises the furuncle, removes the core, and fills the cavity with a power composed as follows:

Quick lime, Sodium carbonate, Alum,	equal parts.

This is said to kill the pathogenic micrococci and to produce rapid healing.

PURGATIVE CASCARA PILLS.

Pruys (*Med. News*) recommends the adminstration of one of the following pills at night:

Ext. cascar. sagrad	gr. xxx
Ext. frangulæ	gr. xv
Pulv. aloes Ext. gentian	aa ʒi
Saponis	q. s.

M. Ft. pil. No. LXXX.

A SNUFF FOR OZÆNA.

The *Journal de médecine de Paris* attributes the following formula to Meyer:

Powdered charcoal, Powdered cinchona, Powdered myrrh,	equal parts

ICHTHYOL IN NEURALGIA.

According to Erlenmeyer, *Centralblatt fur die gesammte Therapie*, ichthyol is an excellent remedy for neuralgia, when locally applied, according to the following formula:

Ichthyol	300 grains.
Absolute alcohol Sulphuric ether,	of each 2½ ounces.

GUTAUD'S AMENORRHŒA PILLS.

The following formula is given in the *Jour. de Med. de Paris* (Dec. 19):

Strychnine sulphate	½ grn.
Iron peptonate Manganese lactate Scammony	aa 20 grn.

Divide into forty pills. Two to four pills every night on going to bed.

GAILLARD'S MEDICAL JOURNAL.

A MONTHLY JOURNAL OF MEDICINE AND SURGERY

Scientia et Veritas Sine Timore.

PUBLISHED BY THE NEW YORK MEDICAL PUBLISHING CO.,
106 William Street, NEW YORK.

All communications, of either business or editorial character, should be addressed to Gaillard's Medical Journal, 106 William St., New York.

Articles for publication will be received with the understanding that they are contributed exclusively to this journal. Reprints will be furnished at actual cost, orders for which should accompany the manuscript. Authors of accepted articles may receive twelve copies of the issue in which they are published. Necessary illustrations will be furnished without expense to authors when suitable drawings or photographs are furnished.

THE ARMY MEDICAL SERVICE.

THE appointment of a special commission by the President to investigate and report upon the conduct of the war can, of course, in no wise lessen the sufferings already endured, but if the investigation be properly conducted the conclusions reached by the commission and the information gained will prove of inestimable value in giving direction to the plans for reorganizing the army, for all agree that there must and will be a complete reorganization, which will undoubtedly include the medical department.

The basic fault with our entire scheme of army organization heretofore has been its lack of elasticity, due in large part to an excessive degree of centralization. Throughout all branches of the service the chiefs have been too much burdened with detail. The result has been that when the service was suddenly increased fifteen fold—for our army was enlarged from twenty to three hundred thousand—the heads of departments found themselves hopelessly swamped with a mass of detail work which owing to the faults of the system of organization could not be shifted without creating a degree of confusion worse even in its effect than the delay and confusion involved by adherence to the prescribed routine. Under existing regulations subordinate officers are not only deprived of all initiative, but are divested of even a reasonable degree of discretionary authority within their own commands. As a consequence the officers in the commissary, the quartermaster's and the medical departments on being confronted with unforeseen conditions, as they constantly were, found themselves without any authority to modify instructions issued to meet totally different conditions, and their work was thus rendered difficult and the results achieved far from satisfactory. The main principle then to be followed in the general reorganization is the placing of greater authority in the hands of the commanding officers of the lower grades. With this increased authority for commanders there would, of course, be a corresponding increase in their individual responsibility. Among line officers the colonel of a regiment should have full authority, for instance, to finally pass upon the discharge of an enlisted man from the service. Under the present system, however, the Secretary of War himself must pass upon each discharge. In the same way a division surgeon should have absolute control of the enlisted men in his hospital corps, being held responsible, of course, by higher authority for the general condition of his men and his staff.

Much of the critcism which has been made of the medical department has been misdirected, being aimed at the men in the department when it should have been directed toward the system upon which this department, in common with the others of the army, was organized, and toward the niggardliness of Congress in failing to make adequate provision of men and materials for the proper medical care of the troops.

Some of the difficulties under which the medical department labored at the outbreak of hostilities are stated at some length by Surgeon-General Sternberg in the following reply to the criticisms of the *Medical Record:*

> The number of medical officers allowed by law is inadequate in times of peace. The total number allowed is one hundred and ninety-two. There are at present thirteen vacancies. The administration of the surgeon-general's office and the Army Medical Museum requires six. Eleven are on duty at medical supply depots and as chief surgeons of military departments. One is at the Soldiers' Home; fifty-six are at general hospitals, on hospital ships, and at garrisoned posts. Four have been disabled during the war by sickness. Five are on duty as chief surgeons of army corps. This leaves ninety-six medical officers available for duty with troops in the field. Of these, thirty-five have been appointed brigade-surgeons of volunteers and are distributed among the various army corps.
>
> This deficiency in regular medical officers has made it necessary to employ nearly three hundred contract surgeons, and more are being employed every day. Most of these doctors from civil life are doing good service, and many of them are thoroughly well-equipped physicians and surgeons with ample hospital experience; but it has been impossible to make a careful selection, owing to the great pressure of business in the surgeon-general's office, and the urgency has been so great that it has not been practicable to have examining-boards to pass upon their qualifications.

General Shafter's army at Tampa was thoroughly well supplied with the necessary medicines, dressings, etc., for field service, but owing to insufficient transportation he left behind at Tampa his reserve medical supplies and ambulance corps. Every one who has read the papers knows about the difficulties encountered in landing supplies at Siboney. As is usual under such circumstances, the fighting men with their guns and the rations necessary for their subsistence were first landed and hurried to the front. The Relief, loaded to her utmost capacity with medical supplies, arrived at Siboney four days after the fight at El Caney. That she was not able to get there sooner was a great disapointment to me, but was no fault of the medical department. I asked for a hospital ship in good time, but there was unavoidable delay in securing a suitable vessel and in preparing her for service.

It has not been the expectation of the medical department that every wounded man would immediately receive the attention of a surgeon. No modern army makes provision for so large a number of medical officers as this would require. But attached to our army there is a corps of non-combatants known as the hospital corps, which is the organized and authorized Red Cross corps of the army. At the outbreak of the war we had eight hundred hospital-corps men in service. At present there are more than four thousand. These men wear a brassard upon the left arm, bearing the red cross of the Geneva convention. We have done our best to instruct them in giving first aid to the wounded, and in a majority of cases a first-aid dressing properly applied by one of these men is all that is required. All of the surgeons who have come from the front have testified to the remarkable results attained from the prompt application of aseptic dressings by our hospital-corps men and by the soldiers themselves or their comrades. The proper application of the dressings contained in the first-aid packet, which is carried by every soldier, is, under existing regulations, a matter in which every enlisted man has special instruction. For some time past this instruction has been given first by our medical officers to the company officers, and by them to the enlisted men.

The medical department should be practically autonomous and entirely independent of the quartermaster and commissary departments. This was clearly shown throughout the whole of the Santiago campaign. An opening in this direction was made in fitting up the transport Olivette as a temporary hospital ship and also in fitting up the Relief and the Missouri. The excellent work done by these vessels furnishes a strong plea in favor of granting still further independence from the quartermaster. A quartermaster and a commissary department should be organized within the medical department which should be entirely independent of the regular quartermaster and commissary.

Probably no branch of the service has been more severely criticised than has that which has to do with the furnishing of medical supplies. Here there has long been evident the need of a complete reorganization on a wholly different basis. The medical supply depots should be conducted not by surgeons, but by skilled pharmacists, men who have special knowledge of the preparation and packing of drugs and medicines. No provision is made for pharmacists at all in the present organization of the Medical Department, though the experience of the Spanish war teaches the crying need of doing so. In the process of decentralization to which the entire army organization must be submitted there should be appointed a pharmacist general with the rank, say, of a colonel, who should relieve the surgeon-general of all details as to medical supplies and who should be held strictly accountable by the surgeon-general for the conduct of the corps of pharmacists under him and for the medical supplies. The average hospital steward of the regular army knows practically nothing of pharmacy and needs to know but little. In the medical supply depots, however, good practical pharmacists would work wonders, but such men as are needed cannot be gotten under the present system, for they would have to come in as surgeons and pass examinations in obstetrics, anatomy, surgery, etc., before being granted commissions to compound and issue drugs. The absurdity of the present regulations on this score are too apparent to need any further comment.

There should also be organized a department of sanitation composed of experts, in addition to the regular corps of surgeons, and a member of this department clothed with real authority should be attached to each division. His authority should be paramount within the command on all matters of sanitation, and not subject to revision by the commander of the division.

Finally, the chief surgeons should be given higher rank, as they have been in all other armies of the civilized world. The surgeon-general should have the rank of major-general and a corresponding advance made in the rank of the senior members of the service. Contract surgeons also should be given actual rank so long as they are in actual service, for their usefulness is at present hampered and they are subjected to unnecessary humiliation in being denied any right to wear the shoulder straps though receiving the pay and performing the duties of a lieutenant.

GAILLARD'S MEDICAL JOURNAL.

VOL. LXIX. NEW YORK, NOVEMBER, 1898. No. 5.

STABWOUND OF THE THORACIC DUCT.—RECOVERY.[1]

By W. H. LYNE, M.D., Richmond, Va.,
Demonstrator of Surgery and Demonstrator of Normal Histology, Medical College of Virginia; Late Resident Physician City Almshouse Hospital, Richmond.

During my service in the City Almshouse Hospital of this city, many were the unusual, interesting, and instructive cases that came under observation, since this is the only emergency hospital here. Often cases of such rare occurrence befell the lot of the ambulance surgeon as to be regarded as surgical curiosities, chief among which is the following, viz.: a stabwound of the thoracic duct at the base of the neck, the result of a midnight street brawl.

Dr. John A. Wyeth, in his most lucid essays on ligations, describes, on account of the proximity to the cervical blood-vessels, the anatomy of the thoracic duct, which is but little larger than a goose-quill near its termination, as follows: "On a level with the insertion of the scalenus it arches to the left, crosses in front of the subclavian, in front of the scalenus, behind the internal jugular and curves downward to empty into the subclavian at its junction with the jugular to form the left innominate vein." Posteriorly to the origin of the sterno-mastoid muscle lies the small anatomic field bisected by the following vital structures —the pneumogastric and phrenic nerves, internal jugular and subclavian veins, subclavian and left common carotid arteries, the thoracic duct and the near-by brachial plexus; a field which the mighty dare but enter after the most careful deliberation and thorough study, yet the would-be assassin's knife plunged amid this network of vital structures, wounding only the thoracic duct.

On account of the rarity of injury to the thoracic duct, many works on surgery absolutely ignore the subject while others dismiss it with a paragraph.

Very little is recognized in life concerning diseases of the thoracic duct, necropsic findings, however, demonstrating their existence as secondary chiefly to a tubercular condition or a suppuration in some of the near-by viscera or lymphatic glands. Pus, blood, bile, and even calcareous matter and concretions have been found in the duct; a rare case of ossification of the duct has been noted, as well as one of gangrene.

Sir Astley Cooper's experiments on animals revealed that gradual compression of the duct resulted in its dilatation, whereas rupture resulted if suddenly compressed; during intestinal digestion, a compression of only a few minutes sufficing to effect a rupture, this being readily explained since the duct at this time is normally distended, due to the absorption of the digested fats brought thither by the lymphatics, the sole conductors of this force-producing product. Where pressure is gradual and permanent, a chylous engorgement ensues, resulting in the establishment of a collateral lymphatic circulation. A varicosed thoracic duct, like a varicose vein, is subject to rupture, discharging, according to locality, into or behind the peritoneum, into or behind the pleura, into the posterior mediastinum, or into the bladder; the effusions producing chylous ascites, chylothorax or chyluria, a case of the latter condition existing intermittently for fifty years in a woman.

---

[1] Read before the Richmond Academy of Medicine and Surgery, August 9, 1898.

Several interesting reports of abdominal and thoracic paracenteses have been made, in which the fluid microscopically proved to be chyle, the quantity being enormous. For instance, 289 pints in 22 tappings; in another, 15 gallons in 68 days; and a third in which 11.8 litres were found and withdrawn post mortem from the pleura.

The cause of rupture of the duct are (1) traumatism or (2) obstruction, which is produced, as in other ducts, by causes from within, as infiltration or thickening of its walls, stenosis from cicatricial contraction, thrombi, etc., or causes from without, as pressure from neoplasms, etc. A cause not common to the obstruction of other ducts, but analogous, is the blocking of the venous outlet, produced not only by a thrombus but by cardiac dilatation with its subsequent venous engorgement, which necessarily interferes with the discharge of chyle into the subclavian vein.

A case is reported where a child with a congenital heart lesion subsequently developed an elephantiasic swelling of the right leg with a papular eruption from which exuded a chylous fluid, such eruptions being associated with or alternating in cases of chylous ascites and chyluria. The frequency of concurrent phlebitis and lymphangitis readily explains the old term "milk leg," now known as a result of a phlebitis. The association of thoracic duct disease, ascertained post mortem, with other tubercular conditions leads me to attribute the malnutrition and emaciation in this dread malady largely to this non-recognized cause.

Experimental wounds in animals have demonstrated the spontaneous cure of thoracic duct wounds, yet death from inanition is to be expected in the vast majority of cases.

Spantaneous cure is effected by either or both of two ways: (1) by contraction of the unstriped muscular tissue, which is circular but scant near its termination, along with the auxiliary elastic tissue, which is longitudinal; (2) by spontaneous coagulation of chyle, a property acquired after having passed through the mesenteric glands. Not only are the function and histologic structure of lymphatics and blood-vessels nearly analogous but also the results of wounds of each, longitudinal ones bleeding less freely than transverse, the severed edges being more readily apposed.

As in other ducts, longitudinal wounds in healing are less liable to be followed by stricture. Since the molecular basis of chyle is emulsified fat (this giving it its milky color, being colorless except during intestinal digestion), it becomes patent that a system deprived of this compound as well as its circulating medium, the excess of the albuminous liquor sanguinis must necessarily suffer; the patient gradually wasting away if the sequela be a stricture or a fistula, or dying from starvation if the duct be completely severed.

The following case is of more than ordinary interest aside from its infrequency, since recovery, followed by no ill effects, resulted:

CASE.—About 1 A. M. May 5, 1896, I was called to an emergency case at one of the police stations. On entering, information was given by some of the officers "that a negro man had been stabbed in the neck and that white blood, like milk, was coming from the wound." A thoracic duct injury was suspected by exclusion, but I silently agreed with them that "I had never seen white blood before."

The negro, aged 24, was of splendid physique, being a porter in a large hay and grain establishment.

On examination, an oblique stabwound about one inch long, depth unknown, was found above and behind the left clavicle and parallel with the outer border of the sterno-cleidomastoid near its attachment, thus, from the anatomy of the parts, necessitating a longitudinal wound of the thoracic duct. There had been considerable hæmorrhage, which had stopped, and an abundant milky fluid was steadily escaping from the wound. For quite a time I was at a loss as to treatment, but, acting on the advice once given me by an older physician, "to look wise, say little and do something if necessary," I decided to tampon, which was repeatedly done after having cleansed the wound with a weak, hot, carbolized solution, the packing of iodoform gauze and compress becoming soaked with chyle. On removing the patient to the hospital, the wound was again redressed under scarcely better aseptic surroundings, using a dressing of like character as before. When this dressing was applied, chyle was still escaping in good quantity though the patient had been slowly moved nearly three miles. On removing the dressing during the ward visit about seven hours thereafter, the escaping chyle and oozing had completely stopped, and the regulation dressing was reapplied with the approval of the surgeon-in-chief, Dr. J. G. Trevilian.

The patient was allowed a light diet. His recovery was prompt and uneventful, the only untoward symptom being a slight suppuration, the patient being discharged nine days after his admission, complaining only of a slight stiffness of his left arm. The patient was seen August 2, 1898, and was enjoying perfect health, weighing ten pounds more than he ever weighed before.

I regret to state that no specimen of the chyle was secured for microscopic and analytic examination, which would have proved of interest.[1]

---

[1] Due credit must be allowed Bertrand Dawson, of London, for his exhaustive medical contribution in Vol. IV of the *Twentieth Century Practice*, Wyeth, Packard, Parks, and the *American Text Book of Surgery*.

REMARKS ON YELLOW FEVER IN JAMAICA.[1]

By JASPER CARGILL, L.R.C.P.LOND., Halfway Tree, Jamaica.

Recent History of Yellow Fever in Jamaica.

For some time past yellow fever has been rare and almost unknown in Jamaica. I have often been asked by recent arrivals how it was that no one heard anything about a disease that used to be so common and fatal in Jamaica. I have never been able to give a satisfactory answer to the question. Even sporadic cases appeared to be things of the past, and there was a growing confidence that the dread disease had died out. Unfortunately the late outbreak indicates that, whatever may have been the cause of the happy lull, yellow fever is still a Jamaican disease, and only wants something to start it, and pabulum to keep it going. It may be that the recent outbreak was determined by the periodicity which is supposed by some to regulate epidemics, acting at a time when sanitary matters were not as they should have been. As soon as the disease showed itself in Kingston there were many and various speculations as to the cause. Dr. Anderson, late of Jamaica, in his useful little book just published, has truly said:

"It may occur in the most healthy country localities with perfect sanitary surroundings and be absent in city slums where from filth, overcrowding, and malaria it might be expected to exist. I do not believe that the very worst conditions of sanitary neglect will ever by themselves alone generate a case of yellow fever; something else must be added thereto."

In the recent outbreak in Jamaica the spread of the disease could not be accounted for, nor could the cases be linked on to one another. There was apparently some general atmospheric condition which affected more or less the whole island nearly at the same time. There were a few individual instances of the disease being carried from place to place, but most of the cases could not be traced in this way. It was a significant fact that while yellow fever attacked certain persons, there was at the same time a general occurrence of malarial fever, especially among the natives. To each case of yellow fever in my practice I had at least 30 cases of malarial fever, some of them of a pernicious type. There were some unacclimatized Europeans who did not contract yellow fever, but suffered from malarial fever. During the outbreak an officer living within two miles of Up Park Camp brought his wife and nine children out from England. In a short time I had them all under my care, not with yellow fever, as was expected, but with well-marked malarial fever; some of them were very ill. Among the black and colored people I had a few cases of pernicious fever, some with jaundice and a few with albuminuria, the temperature going as high as 106° F. The mortality was not high, the disease yielding to quinine. All my cases of yellow fever were Europeans, and with one exception severe hæmorrhagic cases. The mortality in my practice, not counting the cases I saw in consultation, was 37.5. The treatment I adopted was that known as Sternberg's. I had one well-marked case of hæmoglobinuric fever, the so-called blackwater fever of Africa, not a common disease in Jamaica. Of my yellow fever cases only one died from suppression of urine. This was a bad case from the start; the patient died on the fourth day, and had only secreted 6 ounces of urine during her illness. The "walking cases" are not often met with in Jamaica. Dr. Anderson in his large and long experience never saw a case. I had one some years ago. The disease was then epidemic in Port Royal, and very fatal among sailors and white artillery-men.

---

[1] Presented at the annual meeting of the British Medical Association.

Case of Ambulant Yellow Fever.—The commodore and family had a hill residence in St. Andrew, about twelve miles from my house in the Lignanea plains. One night the commodore sent for me to see his secretary, who had the morning before left Port Royal, and had ridden up the hill apparently well. I arrived at midnight, and found my patient lying dead fully dressed. His half-smoked pipe lay on a chair near the bed. The story told me was this. He had felt feverish soon after arriving from Port Royal, but had gone about the garden. An army surgeon who had passed by had seen him, and prescribed quinine. Toward evening, not being able to pass water, he complained to the commodore, who, imagining that it was a case of retention of urine, sent for me, requesting me to bring my catheters. At 10 P. M. he lay down without undressing, and after I had been sent for was found dead. I was able, by slightly inverting the body, to get black vomit to ooze from the mouth, and in drawing off with the catheter about one ounce of urine, all there was in the bladder, I found it one mass of albumen. The skin was slightly yellow, and one nostril blocked with a blood clot. I was informed that he was walking about the grounds a couple of hours before lying down.

A year or two before this I had a case which I think worthy of notice as indicating (1) rapid incubation, (2) decided infection, and (3) much muscular power during the first few hours of a quickly fatal case. In Quain's "Dictionary of Medicine" this case is alluded to in the article on "Incubation of Yellow Fever."

Case of Infection; Sudden Death after Exertion.—Yellow fever was not epidemic at the time, but a fatal sporadic case had occurred in Spanish town in a European inspector of police in a lodging house. After his death the bed had been sunned, but no disinfection of the room had been resorted to. About three days after a young Russian lady, who had been in Jamaica some months as governess in a country family, passed through Spanish town on her way to St. Ann's. She was quite well when she arrived at the lodging house in which the inspector of police had died, and she was put to sleep in the same bed which had only been sunned. The next morning very early she rode on horseback thirteen miles to Linstead, where I was practicing. When she arrived at the home of the rector of the parish, she felt faint on getting off her horse, and on being placed on the sofa vomited. I was sent for and was able to diagnose yellow fever at once. By evening black vomit and retention of urine were present; hæmorrhages soon followed, and she died early next day suddenly from heart failure, falling back on the bed while combing her hair. She had got out of bed, and had taken a looking glass in order to put her hair to rights.

The infection in this case was as rapid as typhus. There can be no doubt that during the stage of calm many deaths occur from injudicious muscular exertion. A patient of mine on the tenth day, while progressing favorably, got up against orders, and walked to the closet in the next room. Hæmatemesis and prolonged convalescence were the consequences. An army surgeon, some years ago, at Up Park Camp, while convalescing, walked to a friend's room near by, and sat up for some time. He became faint, and died the next day from heart failure.

Errors in Diet.—As Dr. Anderson points out, errors in diet may have a fatal result. A Royal Engineer officer had apparently weathered the storm, so much so that the mail conveyed to his wife in England comforting accounts of his recovery. His nurse (one of the "Grannies") permitted him to share her breakfast, consisting of salt fish, yam, and roasted green plantains. Soon after he complained of acute pain in the stomach. This was followed by vomiting of blood and speedy collapse.

Although suppression of urine generally brings the case to a rapid end, cases now and then occur in which the patient lasts out three or four days without secreting one drop of urine.

Prolonged Anæmia.—An officer at Up Park Camp, whom I saw frequently in consultation some years ago, lived over 162 hours in this condition with a clear mind until he died in uræmic convulsions. He sat up and was writing a letter when seized with convulsions.

Diagnosis.

Dr. Anderson's remarks on mixed cases are well put and worthy of consideration. I am quite sure that errors in diagnosis are often made by a too strict adherence to microscopic "rule of thumb" observation. The indications of malaria as revealed by the microscope may be mixed up with yellow fever, and an absence of these indications may also lead to wrong conclusions. When the two fevers are prevalent at the same time, as recently in Jamaica, such mistakes, especially with acclimatized natives, are very apt to occur.

Infection.

I have no doubt, from actual observation, that infection through fomites is sure and powerful, but whether the disease is spread from person to person, as small-pox, measles, and scarlet fever are, I very much doubt. When I was a student in the Public Hospital, Kingston, Jamaica, many years ago, the cases of yellow fever—very numerous there—were treated in the same wards with other diseases. One morning thirteen sailors were admitted. They nearly all died. I opened and examined five bodies, and took no extra precautions after leaving the deadhouse. The late Dr. Andrew Dunn, of Kingston, did not believe in infection. I was attending a case of yellow fever some miles away, and during the night my shirt was saturated with black vomit. I was not able to change until the next day. I never could trace infection from these and similar occurrences.

Treatment.

Dr. Dunn had a large experience in yellow fever, and was most successful in treating his cases. I had the advantage of seeing many of his patients with him. He was essentially a "calomel doctor," and prescribed calomel with a liberal hand from beginning to end. The first case I saw with him was an English official who had just lost his wife from yellow fever. He was in the stage of calm and profusely salivated. This gentleman recovered, but lost all his teeth. Dr. Dunn used to say that nothing pleased him better than to see his yellow fever patients salivated. I had under my care some years ago a clergyman and his wife, and a colonel of the Royal Engineers, his wife and daughter, all with yellow fever at the same time. I treated them with calomel, but without salivating them. They all recovered. Dr. Sternberg gives the perchloride of mercury throughout the whole attack in yellow fever.

As far as our present knowledge extends, there is no drug which has any specific influence over yellow fever. The time-honored calomel purge to start with seems not only to be the custom among the physicians of the old school, but also of the young school. The experienced man must be ready to meet emergencies as they arise. The late Dr. W. B. Keech, one of the medical officers of the Public Hospital, Kingston, when I was a student there, had charge of most of the cases of yellow fever. He had been some time in Cuba, and after the usual calomel purge, would give equal parts of castor oil and olive oil, and, above all things, would starve his patients for two or three days, giving them as much water as they wanted. He would let them have orange-leaf tea, and, if they liked it, small drinks of black coffee. He considered blisters contraindicated as liable to set the kidneys wrong. For suppression of urine he would apply over the loins large and oft-repeated hot linseed meal poultices, and give largely diluted doses of gin and niter. He was considered very successful in the treatment of yellow fever. He seemed to be a disciple of Dr. James Lind, whose essay on "Diseases Incidental to Europeans in Hot Climates," etc., written in 1792, is worth careful reading. A case occurred within my recollection illustrating the benefit of starvation during the early stage of yellow fever. A sailor, in order to avoid being sent to the hospital, hid himself under a wharf taking his blanket and a pan of water with him. At the end of four days he crawled out, his beard and shirt being stained with black vomit. He recovered, having "cheated the doctor," as he expressed it. One of my patients during the late outbreak lived for over three days on wineglassful doses of warm barley-water taken occasionally. His nurse forced him to take milk and soda once, but this he immediately vomited, and refused to repeat the experiment. Of course, he drank water. A young English lady told me after she had recovered from an attack of yellow fever that she used to throw more than half her nourishment into the utensil, watching her opportunity when the nurse was not looking. My own opinion, based on experience, is that during the first stage of yellow fever patients should be very sparingly fed. It is better to starve than to overfeed them.

THE MOSQUITO AND THE MALARIA PARASITE.[1]

By PATRICK MANSON, M.D., LL.D., F.R.C.P.,
President of the Section on Tropical Diseases,
Medical Adviser to the Colonial Office; Physician to the Seamen's Hospital Society
Branch Hospital, Albert Docks.

Dr. Patrick Manson, in the course of a demonstration of the malaria parasite, said: Ladies and Gentlemen,—It was only a very few days ago that I received intimation that I might probably be asked to speak to you about one of the more recent advances in our knowledge of the malarial parasite. Unfortunately at the time I was ill, and as a consequence I fear that, what with bad health and want of time, my demonstration and exposition may be somewhat meagre, faulty, and unsatisfactory. However, I trust to your indulgence, and I hope I may be successful in giving you a lucid account of what is really a marvellous story.

Cycle of the Malaria Parasite in the Circulation.

In order that my hearers may have a clear idea of what I am going to say about the life-history of the malarial parasite outside the human body, it is advisable in case some of you may not be familiar with the recent advances on the subject, to give first a short expose of the leading facts of the life-history of the parasite inside the human body. I will be very brief, and not occupy your time with details which you may easily get from most modern textbooks. Unfortunately, I have left my lantern slides behind me, and I must trust to the chalk to illustrate what I am going to say.

If you examine the blood of a patient suffering from ague and select a time just before the stage of rigor, you will find in a proportion of the blood corpuscles a disc of protoplasm, varying in size according to the species of parasite, dotted all over with black specks of the characteristic pigment of malaria. This is a malarial parasite. If you examine the blood of the same patient during rigor, you will find that these black pigment particles become concentrated more or less in the centre of the blood corpuscle, and that the surrounding pale protoplasm has been broken up into a number of spherules. Later on, if you examine the blood during the stage of pyrexia, you will find that the spherules have escaped from the corpuscles into the liquor sanguinis, and many of them have been absorbed by the leucocytes; a few, however, have contrived to enter the blood corpuscles. Later still, during the stage of apyrexia, you will find that these intracorpuscular spherules increase in size, acquire amœboid properties, become pigmented, and by degrees, as you approach the stage at which we began our examinations, these pieces of pigmented protoplasm attain the size that we originally started with. Such, roughly speaking, is the cycle of the malarial parasite in the human body—that cycle of the parasite that subserves the multiplication of the parasite in the human body. There is nothing in this, however, that gives us any idea or suggestion as to the way in which the parasite manages, as all parasites must do, to pass from one host to another.

---

[1] Read at the Annual Meeting of the British Medical Association, held at Edinburgh, July 26th, 27th, 28th and 29th, 1898.

The Flagellated Body.

If you examine the blood of malarials some time after the blood has been removed from the human body, you will find occasionally a very peculiar and striking organism known by the name of "the flagellated body." This body can only be seen in blood some time after it has been removed from the human body. It is never to be seen in blood immediately after its removal from the circulation—an important fact. This flagellated body consists of a more or less regular, central sphere, dotted over with pigment, and, proceeding from the periphery of the central sphere, 2, 3, 4, 5, 6, or more actively-moving, lashing filaments—flagella. If you keep up your observation you will find that after a time many of these flagella break away from the central sphere, and become free and swim through the liquor sanguinis.

Theory of its Function; the Role of the Mosquito Conjectured.

Now, fixing my attention on the fact that this peculiar, octopus-like creature, this flagellated body, only comes into existence a considerable time after the blood has left the human host, I concluded that there was probably a purpose in this circumstance—that, in fact, it was intended to subserve the necessities of the organism exhibiting it. I concluded that, because it came into existence after the blood had escaped from the human body, the purpose of this flagellated organism lay outside the human body. But, as it was impossible for the latent form from which this organism originated, and which is easily recognized, to escape from the human body by itself, it was necessary, in order to get it outside the human body, to invoke the assistance of some extraneous agency. It is unnecessary for me to give you here the various reasons and speculations which led me up to the conclusion that that agency was the mosquito. Doubtless I was influenced towards this conclusion by my previous experience of this insect as an agency for the evolution of the filaria sanguinis. Some people have doubted my statements as to the capacity of the mosquito for acting as intermediate host of the filaria. In case there should be any sceptic on this subject here, and as an object lesson to convince you of the power of this insect in spreading disease, I have placed under the microscope in the other room two specimens showing the filaria sanguinis in the thoracic muscles of the mosquito. One specimen shows the parasite in a mosquito which has fed on filariated blood about twenty-four hours before. You can distinctly see the worm lying between the fibres of the thoracic muscle. The other specimen is also a section of mosquito's thorax, in which you will find the filaria at the end of six days or a week after the insect had fed, the parasite being much increased in size and variously developed. It is a valuable object lesson for any sceptics who may doubt the power of the mosquito for taking care of pathogenic organisms.

I concluded, then, that the mosquito was the liberating agent of the malaria parasite as well as of the filaria, and that the flagellated body sucked, in its latent form, so to speak, into the mosquito's stomach, developed therein; that the flagella broke free from the central sphere, as we know they do on ordinary blood slides, and that in virtue of their locomotive faculty they traversed the blood in the mosquito's stomach, penetrated the wall of the mosquito's stomach, entered some cell and there started the extracorporeal life of the malarial parasite. Originally this was theory pure and simple—theory, however, that was justified, I think, by many facts as well as by analogy; theory which has now been thoroughly borne out by subsequently and carefully-observed facts.

Ross's Observations.

I was unable myself, from various circumstances, to undertake observations in foreign countries with the idea of establishing the truth of this theory; but fortunately my friend Surgeon-Major Ronald Ross, I. M. S., who had already done much work in blood pathology, was so struck with the probabilities of the hypothesis I had expressed, that he undertook to work out the subject on his return to India, now some three years ago.

The first part of the theory he very quickly proved. He found that, true enough, on the malarial blood entering the mosquito's stomach, ex-flagellation almost immediately followed, and that it followed in a proportion of instances very much greater than occurs in malarial blood spread in the ordinary way on the microscope slide. He found that at least 70 per cent. of the crescent form of the parasite, one of the latent forms of the flagellated body, was transformed into the flagellated body. He found also that the flagella all broke away. But he utterly failed to find what became of the flagella. They disappeared, and he did not know where they got to. He searched the tissues of hundreds of insects, but he could find no evidence whatever of the flagella having entered them.

Discovery of Pigmented Body in the Mosquito.

About a year ago Ross, who had hitherto been working with one or two species of mosquito only, by chance came across what he called a "dapple-winged" mosquito, a species entirely different from any with which he had previously experimented. This dapple-winged mosquito, of which, unfortunately, he was only able to procure four specimens, he contrived to feed upon the blood of a patient suffering from that form of malaria which is known as the summer-autumn fever, and which is characterized by the presence of the crescent body in the blood. Two to four days after these insects had fed he dissected them. In one he could find no unusual appearance, but in the three others he encountered a very remarkable body. He noticed, embedded in the tissues of the stomach wall, certain peculiar, oval, minute, pigmented cells. The fact of the presence of pigment in these cells arrested his attention. The optical characters of this pigment were such that it seemed to be in every way identical with the pigment which is so characteristic of the malarial parasite. He also observed evidence of growth. In fact, Ross was sure that he had now encountered the extracorporeal form of the malarial parasite. About the same time, by accident, he found one specimen of what is known as the grey mosquito, a common species in the tropics, feeding upon a case of ordinary tertian malaria. This mosquito he captured and kept for a few days, and afterwards dissected it. In this insect, too, he found similar pigmented bodies embedded in the walls of the stomach.

MacCallum's Observations on Halteridium.

Here, however, fact and theory seemed to diverge. It was difficult to reconcile the presence of pigment in these cells with the absence of pigment in the flagella which, according to my hypothesis, are the infecting agencies. The pigment always remains in the central sphere, or what may be regarded as the residual portion of the flagellated body; it does not enter the flagella. How then account for it in Ross's bodies if they be the developing malaria parasite? Fortunately at this juncture help came from America, help which apparently reconciled theory and fact. MacCallum, of Johns Hopkins University, observed that in halteridium, an intracorpuscular parasite of birds closely allied to the malaria parasite of man, as I shall presently explain, the purpose of the free flagellum is to impregnate certain halteridia, and, as it were, prepare them for entering on a new phase of existence. In watching slides of blood containing halteridium he observed parasites escape from the blood corpuscles and assume a spherical form. Certain of these spheres emitted flagella which, breaking away, accumulated about other spheres which did not emit flagella, and finally entered them. Whereupon, after a time, the impregnated spheres changed shape, and acquired locomotive powers; became, in fact, travelling vermicules, containing the entire substance of the original halteridium sphere, including its pigment. They exhibited great powers of penetration, passing indifferently through red blood corpuscles and white blood corpuscles, and moving with freedom and activity about the field. Depend upon it, this locomotive penetrating power exhibited by the pigmented halteridium vermicule has a purpose. Observe that it comes into existence only after the blood containing it has left the body of the bird. What more likely, then, than that this purpose is the attainment and penetration of the walls of the stomach of some special kind of mosquito that has ingested it? It is pigmented. Hence, arguing from analogy, I would suggest the pigment in Ross's pigmented bodies found in mosquito fed on human malarial blood.

This explanation I think is admissible, although, I confess, it cannot be said that absolute proof is as yet forthcoming.

Ross's Observations on Bird Malaria.

So far Ross's investigations had gone. He had succeeded in interesting a number of people in his work, and fortunately he succeeded in interesting the Indian Government. The Indian Government took him by the hand, relieved him of military duty, sent him into Calcutta, and placed him in a well-equipped laboratory with instructions to work at this mosquito-malaria hypothesis. When Ross arrived in Calcutta in pursuance of these instructions, it was an unfortunate time of year for his purpose. It was not the malarial season, consequently he had a difficulty in procuring human subjects for observation and experiment.

With characteristic energy, however, and not to lose time, he turned to bird malaria, and resolved to devote a few months, at all events until he could get a sufficient number of human malarials, to studying the analogous parasites of birds. You know that birds, particularly in warm climates, are subject to what I might call plasmodial infection; that their blood often contains parasites strictly analogous to those characteristic of malaria. There are two important species that have been studied. One of these is called halteridium, by Labbé, a well known French authority. The characteristic of this species is that it extends alongside the nucleus of the bird's blood corpuscle, and forms sporulating appendages at the end of this halter-shaped sort of jugum. The other, very much like halteridium, sporulates in a somewhat different fashion. It is a more concentrated parasite, so to speak, occupying rather the center of the oval blood corpuscle, and in order to obtain room displacing laterally the nucleus. It is called proteosoma.

Now, both of these parasites resemble the malaria parasite in their structure. They are both intracorpuscular, and they are both composed of pale protoplasm carrying a large number of grains of black pigment. They also, like the malarial parasite, sporulate and they form flagellated bodies; so that in every way they seem strictly analogous, and closely allied to the malarial parasite.

Discovery of Pigmented Bodies in Mosquitoes Fed on Sparrows Affected with Proteosoma.

Ross gave particular attention to proteosoma. He found that by feeding the grey mosquito on sparrows, larks, and crows containing this parasite, he could with the utmost certainty get a crop of pigmented cells, resembling those he had similarly raised from human malaria, in the stomach of these insects. These experiments he repeated a vast number of times—not one or two insects, but hecatombs of mosquitoes he sacrificed in this way in the cause of science. I forget his exact figures, but of 245 grey mosquitoes fed on sparrow's blood containing the proteosoma parasite, 178 (or 72 per cent.) showed the pigmented bodies in the walls of the mosquito's stomach. He fed an equal number of mosquitoes on human blood, on the blood of birds devoid of this parasite, and in various other ways, and of 249 mosquitoes thus fed not one showed these pigmented cells in the walls of the stomach. These experiments seemed very conclusive. I was particularly struck with one experiment which he details. He collected a number of mosquito grubs from a drain near his laboratory, and he put them in a bottle, and allowed them to remain there until the mosquito was evolved from the pupa. Then he fed some of these mosquitoes on a bird in whose blood the proteosoma was particularly abundant. Ten mosquitoes he fed in this way, killed them, dissected them, and examined their stomachs, and on an average he found that the stomach wall of each mosquito contained 100 pigmented cells. He took another batch of ten of the same mosquitoes, and fed them on a sparrow whose blood was but moderately affected with the proteosoma. He dissected their stomachs, and enumerated the pigmented cells he found there, with the result that the average was only 29. Ten he fed on sparrows in whose blood the proteosoma was not present, and these he also dissected and carefully examined with high powers of the microscope, and in not one did he find any evidence whatever of the presence of pigmented cells.

Of the care and accuracy of Ross's observations I can give personal testimony. The preparations of these thirty dissected mosquitoes' stomachs were sent to me, and I found under the microscope the pigmented cells, which there was no difficulty in finding, with the result that my count practically tallies with Ross's finding. I could state many more experiments, but these suffice to establish the fact that the grey mosquito fed on sparrow's blood containing proteosoma almost invariably contained the pigmented cell, and that grey mosquitos fed on sparrows whose blood did not contain the proteosoma did not contain pigmented cells. The inference cannot be avoided that somehow or other the mosquito subserves the proteosoma, and that the pigmented cell is an evolutionary form of proteosoma.

Their Position and Development.

After thoroughly establishing this fact Ross set to work to find out something about the history of these pigmented cells in the stomach wall of the mosquito, and to endeavor to locate their position exactly. If you examine a mosquito's stomach with the microscope you will find that the wall is made up of several layers. The outer layer is composed of ramifications of the air vessels of the insect. Beneath this you will find two layers of muscular fibres, longitudinal and circular. These cross each other at right angles, producing a sort of rectangular pattern. Below these you will find a structureless sort of membrane which does not stain easily, and below this again, and forming the lining membrane, the mucous surface, so to speak, of the mosquito's stomach, what might be called the epithelial layer, composed of several strata of cells. Ross found that the pigmented proteosoma cells do not occur, as might have been supposed, among the soft epithelial cells lining the inner surface of the stomach, but that they lie either on the outer surface of the homogeneous layer covering this, or between the meshes of the muscular fibres. You see them lying between the muscular fibres which they dissociate somewhat in the same manner as trichina spiralis dissociates the muscular fibre of the pig and other quadrupeds. When the parasites grow, as they do by-and-by, to a large size, they gradually protrude as a sort of wart-like object on the outer surface of the stomach, so that finally, after six or seven days, a number of wart-like bodies—which are really what Ross calls the "proteosoma coccidia"—protrude into the body cavity of the insect.

Ross has not succeeded as yet in finding the earlier or first-day phase of the proteosoma in the mosquito's stomach wall; but on the second day there is no difficulty—as you can see under the microscopes in the other room—in finding the parasite. It is an oval body some 6 or 7 micromillimetres in diameter; through the homogeneous protoplasm of which it is composed you will find scattered some twenty particles of intensely black pigment. The outline is very distinctly and sharply defined. By degrees the little parasite grows, so that on the third or fourth day it attains a diameter three or four times this, becoming, in certain instances, granular, and exhibiting occasionally vacuoles, and other obscurely indicated marks of structure. By the fourth or fifth day it is more spherical, and has attained a considerable size, sometimes a diameter of 60 to 70 micromillimetres. The wall of the proteosoma coccidium is now thick and dense, and has a capsular appearance, and dim indications of structure can occasionally be made out. In one particularly striking appearance there is a sort of concentric arrangement of granules recalling what we may sometimes see in show specimens of diatoms.

So far Ross had got with his work when his report (for permission to use which I am indebted to the Secretary of State for India) was written. According to government instructions, it had to be sent in at the end of three months. Since then he has made remarkable progress. Of this progress I have learned from letters and telegrams.

Formation and Diffusion of "Germinal Rods."

Ross found in certain mosquitoes, particularly in those mosquitoes in which the protruding proteosoma coccidia had ruptured, diffused through the body cavity, and also in the tissues of the insect, certain peculiar bodies which he afterwards called germinal rods. They are exceedingly minute, spindle-shaped, somewhat flattened bodies. He found these in enormous numbers. He could not at first understand whence they came. After a time, however, he discovered that by dissecting the stomach of the mosquito in salt solution, and by exercising a little pressure on the cover glass, he succeeded in rupturing the proteosoma coccidia, with the result that enormous numbers, myriads, of these germinal rods were extruded from their interior. Thus he accounted for the presence of these bodies in the body cavity of the insects. They were the progeny of the coccidia. He also supposed that they became diffused throughout the insect by entering its blood. They have no very manifest locomotive power of their own, and consequently they could not wriggle their way through the tissues. He therefore concluded that they must be carried through the tissues by means of the blood. To test this he pricked with a fine needle the back of a mosquito at a time when he knew that the germinal rods must have formed in the proteosoma coccidia, and when he knew that these coccidia had in the main ruptured. He obtained a minute droplet of the characteristic white blood of insects, mixed this with a little salt solution, and placed it under the microscope, and therein he found innumerable germinal rods. Later he endeavored to make out what next became of these rods, what was their purpose and destiny.

Their Presence in the Veneno-Salivary Glands.

In dissecting the tissues of the insect he, by accident, stumbled across a peculiar gland connected apparently with the proboscis. This gland consisted of a number of plump, clearly-defined cells, arranged along a branching duct. He found that there were at least two such glands, one on either side of the insect's head, and he was astonished at finding in the clear, plump cells composing the glands enormous numbers of the proteosoma germinal rods. He found them arranged in bunches, as it were, producing in the gland cells an appearance something like the groups of bacilli in the lepra cell. Dissecting them out, and studying them microscopically, he found that the long ducts of the glands uniting terminated in a common trunk opening into the proboscis of the insect.

Experimental Communication of Proteosoma Disease by Mosquito Bites.

Ross concluded from this, or rather speculated on the strength of the facts, that very likely this was the route by which the proteosoma germ left the mosquito. Possibly, he thought, it might be the way or a way by which the parasite was introduced into a fresh host. No sooner had the thought occurred to him than he proceeded in a characteristic way to test it by experiment. He got mosquitoes that had fed on proteosoma-infected sparrows, and kept them five or six days until he knew the germinal rods had been formed, and were occupying these veneno-salivary glands, for such they undoubtedly are. He then let the insects loose again on sparrows in whose blood careful microscopic examination had shown there were no proteosoma. Later on the mosquitoes bit the sparrows, and then after some days Ross pricked these long-suffering sparrows and examined their blood. He had the gratification of finding innumerable proteosoma in the blood corpuscles.

This is a wonderful and most suggestive result. I believe it, for I have confidence in Surgeon-Major Ross's intelligence and in his honesty. He is an extremely truthful observer, and would be the last to overstretch any fact that he may have observed. He speculates—yes; but when he is speculating he tells you he is doing so; when he states a fact you may rely upon its accuracy. Much of the information I have just given you came to me by telegram; unfortunately, therefore, I cannot enter into minute detail, for one does not expect to find scientific men investing largely in telegraphic messages, even when communicating important facts of science; but substantially I have not the least doubt that my presentment of the subject is correct.

Bearing of Ross's Observations on the Malaria of Man.

That this is the last word on the subject of the extracorporeal phase of the malarial parasite I do not believe. I think that malaria may be acquired in this way—that is, by the bite of the mosquito; but that that is the only way I cannot venture to assert, in fact I do not think. For observe: malaria, we know, multiplies indefinitely outside the human body, independently of man. In fact, malaria is most prevalent in places where man is not. Therefore, this extracorporeal condition of multiplication must demand something more than a short cycle of from man to mosquito and from mosquito to man. My impression is that it requires an infection of mosquito by mosquito; possibly, as in tick disease or as in silkworm disease, through the insect's ova, possibly through the larva. Ross's facts supply us, gentlemen, with an explanation of the former sort. They do not tell us how the parasite multiplies indefinitely through generation after generation. Still, it is a most important addition to our knowledge, and I am sure that it will lead to a full solution of the entire problem and to very many advances in this important subject. It may be objected that what holds good for proteosoma may not hold good for plasmodium malariæ; but the similarity of the parasites is so great that one cannot resist the conclusion that their histories are also similar. Moreover, Ross has distinctly shown, as already mentioned, that certain species of mosquito do elaborate pigmented cells when fed on human malarial blood.

I am sure you will agree with me that the medical world, I might even say humanity, is extremely indebted to Surgeon-Major Ross for what he has already done, and I am sure you will agree with me that every encouragement and assistance should be given to so hard-working, so intelligent, and so successful an investigator to continue his work. His observations tend to the conclusion that the malaria parasite is for the most part a parasite of insects; that it is only an accidental and occasional visitor to man; that not all mosquitoes are capable of subserving it: that particular species of malaria parasites demand particular species o. mosquitoes;that in this circumstance we have at least a partial explanation of the apparent vagaries of the distribution of the varieties of malaria. It seems to me that when the whole story has been completed, as it surely will be at no distant date, in virtue of the new knowledge thus acquired, we shall be able to indicate a prophylaxis for malaria of a practical character, and one which may enable the European to live in climates now rendered deadly by this pest. Other practical issues will occur to any one who thinks of the importance of an accurate knowledge of the life-history of this as of any other parasite.

Future Lines of Study.

What we want now is a complete study of the various species of mosquito in malarial and other lands, and of their behavior in regard to the various forms of malarial parasites. It is only a question of a little time and of a little money. A few thousand pounds devoted to an investigation of this nature would prove an investment yielding a most liberal return to the country that makes it, and to none more than Great Britain.

Later Observations.

Note.—Letters received from Ross subsequently to the delivery of the foregoing confirm and expand what is therein stated. Many (30) successful experiments on the communication of proteosoma to healthy birds indicate an incubation period of from five to nine days. The intensity of the infection so conveyed gradually increases during several (4) days, until finally as many as from five to ten or more parasites are to be found in every field of the bird's blood. These artificial infections are much more severe than those acquired naturally: the birds may die from them. Ross further states that he has succeeded in communicating sparrow proteosoma to the crow. He also refers to another interesting observation—one which tends to confirm Mannaberg's view of the origin of the crescent body in human malaria. He finds that the large nonsporulating form of proteosoma—that from which the flagellated body is developed—does not begin to appear in artificial infections until three or four days after the sporulating forms are observable: and he further states that it is easy to follow the formation of the body by the conjugation of the associated parasites in multiple infections of blood corpuscles. He has devoted a good deal of attention to the peculiar black sausage-shaped bodies. Like the other forms in mosquito proteosoma infections, these occur only in mosquitoes fed on proteosoma-containing blood. They are frequently present in great profusion, and, like the "germinal rods," escape on rupture of the enclosing capsule into the body cavity, becoming subsequently diffused through the blood and tissues of the insect. Although Ross made several attempts to get these bodies to develop, hitherto these attempts have failed. The black bodies are not altered if kept in a moist chamber for weeks; they do not develop in the stomach of mosquito grubs fed on mosquitos containing them. That is to say, they resist decomposition and digestion, but, though thus refractory, there can be little doubt that they have a significance in regard to the life-history of proteosoma; possibly they are of the nature of resting spores, and demand some very special condition for their further development.

COMMON CONTAGIOUS DISEASES OF THE SKIN, AS MET WITH IN SCHOOL CHILDREN, AND HOW TO PREVENT THEM.[1]

By T. CASPAR GILCHRIST, M.D.,
Associate in Dermatology, Johns Hopkins University.

It is not my present intention to describe in detail all the various contagious affections of the skin which are met with in school children, but rather to draw particular attention to certain of the more common varieties which are often overlooked by parents and by the general practitioner and to emphasize the importance of a careful diagnosis in many cases which are too apt to be passed over lightly and which, later on, prove to be a source of contagion to many other pupils in the same school. With the eruptive fevers we are not now concerned, as they seldom, if ever, come under the special care of the dermatologist. I shall, therefore, confine my remarks to the diagnosis and treatment of various forms of ringworm of the scalp, of pediculosis, of the disease known as impetigo contagiosa, tinea favus and of scabies.

Ringworm of the Scalp.

Is due to the presence of a parasite known as tinea tonsurans. This disease is limited to children and is practically never met with in adults. The usual typical appearances, such as a distinct circular patch, covered with light scales and stumpy hairs, which are easily pulled out or almost fall out by themselves, are always easily recognized. The variety which is difficult to diagnose and yet is comparatively common is characterized by a scaly condition of the scalp in patches, though no circular areas are met with. On careful examinataion of these areas a few stumpy hairs, or hairs which are broken off near the scalp, can usually be found, and the diagnosis is easily confirmed by soaking one or more of them in liquor potassæ and examining with a high power of the microscope, when numbers of spores will be found invading and clinging to the hair-shaft.

---

[1] Read at the annual meeting of the Medical and Chirurgical Faculty of Maryland, 1897.

Chronic or Disseminated Ringworm.

In this condition the hair will grow to some length over the diseased areas, although some spores of the parasites may be present, and on careful examination an occasional broken hair will be found, while at the same time these portions of the scalp may show slight scales which resemble dandruff.

In two different orphan schools in Baltimore I have just recently seen all three varieties. In one of them there were twelve cases, only three of which, presented the ring-shaped patches described as typical of the ordinary ringworm, whereas the remaining nine presented the irregular scaly patches. In three of the latter it was only after careful searching of the scaly areas that a few typical stumpy hairs were found. These stubby hairs are pathognomonic of the disease.

Among other rarer varieties of ringworm are tinea kerion. In this form cocci have invaded the tissue, together with the ringworm parasite, and the patch is found to be boggy, raised, deep-red in color, and shows many small suppurating points, in the centers of which are the diseased hairs.

Bald Tinea Tonsurans.

Instead of the scaly patches there are small bald patches, at the edge of which will be found the stubby hairs. Ringworm of the scalp is now regarded by dermatologists as one of the most troublesome diseases of the skin which they are called upon to treat. It seems strange that so persistent and unpleasant a disease should be so lightly thought of by the practitioner, and that practically no precautionary measures are advised to prevent its spread. More especially is this to be wondered at in view of the fact that the disease is so prevalent among school children. And yet the diagnosis is comparatively easy. Speaking generally, it is justifiable to make the statement that a bald patch on a child's head is usually ringworm. In scaly patches occurring on the scalp of children ringworm should be suspected, and careful examination should be made for stubby hairs, the diagnosis being confirmed by the microscopic examinataion.

Of course, ringworm is not a dangerous disease, but besides the trouble which it causes the patient, it is disfiguring and a perpetual source of annoyance to his family and friends. Again, inasmuch as it is most certainly contagious to the other children with whom the patient is associated, it is of the utmost importance that the disease should be limited as much as possible.

As a proof how easily the disorder may become epidemic, it is on record that as many as 367 children in a London (England) school of 800 have been infected from one child, who had a patch on the scalp of the size of a split pea. Many similar instances could be quoted as having occurred in this country. And yet it is quite common for us to see cases in children who are attending school as if they were perfectly healthy. But in the light of our present knowledge and of the reliable statistics which we possess, it must be conceded by all that much greater attention should then be paid to cases of ringworm of the scalp than has hitherto been given, and it ought to be an ironclad rule that any child who has this disease should not be allowed to attend school. I would go further, and say that if any bald or scaly patches are found on a child's head he should be excluded from the school until it has been proved that the case is not one of ringworm. The prevention of the spread of this disease can only be attained in this way, for it is at school that the disease is usually caught. Among colored children ringworm is very prevalent, and very frequently assumes the atypical scaly or dandruff-like condition of the scalp.

The treatment consists in cutting the hair short, in epilation, in washing and the application of parasiticides. To illustrate the difficulty of curing cases of chronic ringworm or those in which the spores have invaded the deeper portion of the hair follicle I might point to the fact that seventy-two children were treated as inmates of the New York Skin and Cancer Hospital for seven months and only twenty-five were cured.

Pediculosis.

Pediculosis with or without a consequent pustular eczema is a common disease of the scalp in school children. When the patient comes to us we can usually detect the presence of isolated or confluent pustules and scabs, especially over the posterior portion of the scalp and accompanied by enlarged cervical glands. The diagnosis is easily made by examining the scalp for pediculi or nits. The latter at once give the clue to the nature of the disease. The nit, which is a small pear-shaped body, is glued to the hair, and a futile attempt to flick it off demonstrates the fact that it is not dandruff, scales of which often closely resemble nits.

Pediculosis seems to me to be particularly prevalent in the Baltimore public schools. Any one who has examined a large number of the pupils will be convinced that sufficient attention is not paid to preventive measures. Some patients, whom I have seen lately, have presented some of the worst features of pustular eczema, the scalp being full of scales and the hair matted together.

The treatment consists in destroying the pediculi and nits by means of petroleum; if this is done the pustular eczema will soon get well under simple treatment.

Impetigo contagiosa may be defined as an acute inflammatory affection of the skin, characterized by the formation of vesicles, which soon become pustules, and the rapid formation of sticky, yellowish, moist, discrete and confluent scabs, situated particularly on the face, fingers and hands. It occurs in children and is often passed from one schoolfellow to another.

During the last seven years I have seen over 700 of these cases, and am inclined to assert that so far as children are concerned it is almost as common as eczema. When a child has this disease complete isolation is not necessary, but the child should certainly be kept away from school until it is cured, as, unless great care is exercised, it will prove a source of contagion to the other children.

The treatment is simple. White precipitate ointment should be applied, and the case is generally cured within a week or two.

Tinea Favus.

This is much rarer than the previous affection. It is a chronic vegetable parasite disease, which attacks children's scalps and other portions of the body. It is particularly prevalent in Poland and Hungary; in the United States it is met with chiefly in immigrants who have come from these countries. I have seen striking evidences of its contagiousness in our public schools, especially in those attended by foreign-born children. It has been decided that the presence of this disease in immigrants is sufficient cause for forbidding their landing in New York. I have now seen quite a number of cases where children born in this country and of American parents have been attacked, the disease having been contracted from foreigners. In one case a little girl of South Baltimore had caught this disease while attending public school. he disease is recognized on the scalp by the dry sulphur-like yellow, discrete and confluent crusts, pierced by hairs, the presence of atrophic scars and a mousey odor.

I would suggest that not only should a strict lookout be kept for this disease by the officers of our port of Baltimore, but that the condition of the scalp of foreign-born children attending our schools should be the subject of strict inspection by the proper authorities. A crusty condition of the scalp occurring in children, and especially in foreign-born children who come from Poland, Russia or Bohemia, should always put us on our guard. Children suffering from this disease should certainly not be allowed to attend school. The disease is very chronic, lasting for years, and if a case is cured within twelve months it might be described as an instance of fairly rapid recovery.

Scabies.

Scabies is another contagious disease often mistaken for eczema. It is an affection which is apt to spread more among members of the same family; but a child having this disease is a source of contagion to others, and should be kept away from school.

To sum up, it is of the utmost importance that far more attention should be paid to the diagnosis and treatment of ringworm of the scalp, and especially to the condition characterized by scaly dandruff-like patches. Any child, indeed, who is found to have a scaly or pustular affection of the scalp or face should not be allowed to attend a public school unless he can show a written certificate from a physician stating that the disease is of a non-contagious character. Physicians should not be too ready to diagnose as eczema a disease of the scalp which is secondary to parasitic infection, and should never pronounce a case of ringworm of the scalp to be cured until a very thorough examination has been made for stubby hairs once a week for three weeks after treatment has been stopped. I think it desirable that all teachers in our public schools should be instructed to keep away children who have any bald patches or any scaly or scabby condition of the scalp or face, or, in fact, any skin affection, until they have received a doctor's certificate that the disease is non-contagious.

SELECTED ARTICLES.

ARE COMPLETE CASTRATES CAPABLE OF PROCREATION?[1]

By F. R. STURGIS, M.D., of New York.

The subject that I have selected for your consideration may perhaps cause a smile on the ground that it is one of scientific curiosity rather than of practical worth; but a moment's reflection will, I think, show you that it is of value, if not from the purely surgical side, at least from the standpoint of forensic medicine.

Scattered over the pages of medical literature are instances in which the legitimacy of a child has been called into question on account of a suspicion as to its paternity, and it oftentimes becomes of importance not only for the good name of both woman and child, but also sometimes for the inheritance of estates, that this question should be solved. While we admit that the absence of testes in the male throws a strong doubt upon the legitimacy of the child, I myself believe that there is some evidence within certain limits to support the view that a man who is deficient in both of his testes may yet be the father of his child, and I ask your consideration, first, in order to detail the experiments bearing upon this point, which have been made on animals, and, second, in adopting the deductive method of reasoning to take up those cases in which men who have become eunuchs have yet been reputed to be fathers of children.

The possibility that entirely castrated animals may within certain limits be capable of procreation is as old as the days of Varro, who, in his book "De re Rustica," stated that he had "found something written of these animals (to wit, bulls) that is noteworthy; that even when the testes are abstracted, if they are put at once to cow they are capable of procreation." (Liber ii, 1619.) Aristotle, also, in his "History of Animals," Book iii, says: "And it has happened that a bull has begotten young if admitted to the female immediately after castration." Whatever we may think of the scientific knowledge of the ancients, there is no reason to doubt the accuracy of their statements; they were acute observers, and so far as their eyes were of any use they knew what they were talking about.

---

[1] Read before the American Association of Genito-Urinary Surgeons, June, 1898.

Passing on from the Greek and Roman writers to the Arabian school of medicine, I have not been able to trace any evidence whatever that this subject was studied, possibly for the reason that the Arabians, the Saracens, and the Moors were not prone to practise castration either upon man or beast.

The next mention of this subject which I can find is contained in the *American Intelligencer*, for the year 1838, in an article, entitled "Note on the Power of Procreating after Castration:" "A question has been asked, whether, if a man be castrated after the age of puberty he may not be able for a few days after the operation to impregnate with the sperm contained in the seminal ducts and vesicles. * * * This has been generally doubted, both as regards animals and man, but there is no question of the fact in the case of the former. * * * We have recently obtained the following information on this point: A valued friend of the editor (Dr. Pue), who practised in Baltimore, has furnished him with many facts of the kind which fell under his own observation or that of his friends. In one case a boar was observed on one side of a hedge in a field of his farm striving to get at some sows in heat on the other side. The boar was castrated and no inconvenience being apprehended he was turned loose into the field with the sows. In five minutes after the operation he had intercourse with one of the sows and subsequently with others. The first sow brought forth a litter, the young marked like the sire. None of the others was impregnated.

"In another case, after a horse had been castrated, it was recollected that the yard had not been washed, which it seems is looked upon as advisable. To save trouble it was suggested that the same effect might be produced by putting him to a mare then in the stable and in heat. This was done and in due time the mare brought forth a foal unequivocally the result of this sexual union.

"A gentleman who is a great breeder of horses in Saratoga county, New York (Mr. Walton Hamilton), informed the editor's friend, Nicholas P. Frist, Esq., United States Consul at Havana, that he had known several instances of impregnation after castration."

In the same journal the same year is another article on "The Power of Procreating after Castration," which contains a letter addressed to Professor Dunglison by Joseph Warrington, Esq., in which he says: "In looking over a recent number of the *American Library and Intelligencer* I perceived some notices of occasional instances of the capability in animals to procreate after castration. Although contrary to the general impression that this function is immediately destroyed by the removal of the testes, I am prepared to credit the statement by an observation which I made several years since. A sow in heat had left the herd of a neighboring farm, and visited that on which I then resided, in search of a boar, which having, as was supposed, served the purpose of impregnating all the sows of that and the adjoining farms had been fully castrated two days before this visit. With nearly his accustomed energy, however, he covered the sow, which, without further coition, ceased to be in heat, and in due time produced a litter of pigs. The boar from that period never evinced either inclination or ability for sexual intercourse."

In similar statements which have been made not only by ancient but by modern authors, it is noticeable that no particular period is assigned within which the fertility of the procreating powers is retained; and while it would seem very probable that the power is not entirely lost for some little while after the mutilation has taken place, we are unable to say up to what time that power exists.

The next series of experiments which I have to present are those of Obolonsky,[2] who experimented upon two dogs, in both of which animals the testes were entirely removed. In the first dog the secretion of the vesiculæ seminales was examined *seven days* after castration, when spermatozoa were found in great quantity, but without motion. On the addition of a weak solution of bicarbonate of soda, however, the movement of the spermatozoa became quite lively and they appeared to be perfectly normal. In this dog the external wound of operation had not entirely healed. In the second, the wound had entirely healed, the examination being made *thirty-one days* after the operation. The contents of the vesiculæ seminales showed abundant spermatozoa, but less in quantity than in the first case. At first they were without motion, but upon adding a weak solution of bicarbonate of soda they became quite lively. So far as the microscopic appearances went they were perfectly normal, and Obolonsky is of the opinion that had the dog at that time indulged in coitus he would, everything else being equal, have proved fruitful.

The next series of experiments were those made by Masuraca.[3] His experiments were nineteen in number, made upon fourteen animals, seven of which were dogs, four cats, and three guinea-pigs. The technic consisted in removal of the testes by a transverse incision into the scrotum, and after removal the cord and the vasa deferentia were ligated and the wound dressed antiseptically. The only exception was in the case of the guinea-pigs, in whom, the testes being in the belly, no ligation was made; otherwise, the procedure was the same as in the other cases. Death was induced by hanging. In all the subjects of the experiments spermatozoa were found in the epididymis. Of the seven dogs that were experimented on, the first was killed twenty-four hours after the operation. In the vasa deferentia normal spermatozoa were found, few in number and endowed with motion. The second dog was also killed twenty-four hours after the operation. In it abundant normal spermatozoa were found which were for the most part endowed with movement. The third dog was killed three days after the operation. In it normal spermatozoa were found, of medium quantity and without motion. It is worthy of note that in the hanging of this dog a white milky drop came from the urethra which, on being examined, contained no spermatozoa whatever. The fourth dog was killed sixty-four hours after the operation. Abundant spermatozoa were found, which were normal in appearance and endowed with motion. In this dog, also, during the process of hanging, a white drop came from the urethra in which no spermatozoa were found. The fifth dog was hanged four days after the operation. In it a moderate number of normal spermatozoa were found, but they were all motionless. In the sixth, the animal was killed five days after the operation. Only a few spermatozoa were found, but these few were normal in appearance and endowed with feeble movement. The seventh dog was killed seven days after the operation. In this animal the vasa deferentia were empty. Only one single body which looked like a spermatozoon was found which was endowed with a head. The body was thickened; it was crumpled in appearance and seemed to have become granular.

---

[2] *Vierteljahrschrift für Gerichtliche Medizin*, N. F. Bd. 48, p. 362. 1888.

[3] "Sopra un Importante Questione Relative alla Castrazione."

Of the cats, which were four in number, one was killed four days after the operation. During the hanging the bladder was emptied and a milk-white drop exuded from the urethra, which, upon examination, was found to be full of normal spermatozoa. The hanging was interrupted and the animal resuscitated. This same animal was hanged upon the next day, five days after the operation. Abundant spermatozoa were found in the vasa deferentia and these were for the most part endowed with motion. The second cat was hanged six days after the operation. In this animal only few spermatozoa were found, some of which were endowed with feeble motion. The third cat was despatched seven days after the operation. In this animal the spermatozoa were present in large quantities, but they were not endowed with motion. The fourth cat was hanged twenty-five days after the operation and in this animal no spermatozoa were found, nor were there any bodies which looked at all like spermatozoa.

Of the three guinea-pigs, the first one was killed four days after the operation. In the vasa deferentia of this animal abundant spermatozoa were found but they were all straight and motionless. The second guinea-pig was hanged six days after the operation. During the hanging a large milk-white drop escaped from the urethra, which, upon examination, was found to contain numerous cellular elements of various size and abundant spermatozoa, which were straight and not endowed with motion. In the case of this animal, the hanging was interrupted; it was resuscitated and was used again for the third experiment, when it was killed eight days after the operation. During suspension many milk-white drops exuded from the urethra, which were found to contain an abundant number of cells with spermatozoa, having the general appearance that was present in this same animal two days before. These spermatozoa were not endowed with motion. Although an effort was made to resuscitate this animal, it was unsuccessful. The third guinea-pig was used for an extended series of experiments, being hanged no less than four times before it was finally despatched. The first time it was hanged ten days after the operation and during suspension an abundant milky secretion exuded from the urethra. This secretion was found to contain numerous cellular elements and an abundant quantity of straight and motionless spermatozoa. Some of these spermatozoa were seen to have their tails curled and to be slightly thicker than normal. As noted above, this animal was cut down before it was completely dead and was resuscitated without any trouble.

The fifth experiment (third guinea-pig) was made fourteen days after the operation. As before, the usual drop appeared at the urethra and this drop revealed, upon examination, an abundant number of straight, motionless spermatozoa, with clear outlines. This animal was again resuscitated and used as the subject for the sixth experiment. It was again suspended seventeen days after the operation. The usual urethral drop made its appearance, which, upon examination, showed granular degeneration of the epithelial cells, free fat globules, and some motionless straight spermatozoa. The same animal served as the subject for the seventh and final experiment, twenty days after castration. The usual urethral drop appeared during suspension, which, under the microscope, showed epithelial elements, no spermatozoa, and some white dodecahedral crystals which upon the addition of acetic acid took a crystalline form resembling a Latin cross (Boettcher's crystals?).

These experiments are interesting because so far as animals are concerned there seems to be a difference in the viability of the spermatozoa after complete castration. In the dogs, which were seven in number, and in whom seven separate experiments had been made, spermatozoa were found on the sixth day, few in number it is true and with feeble movement, but still spermatozoa, proving that the semen was more or less fruitful. On the seventh day we practically for the first time lose sight of the spermatozoa. The dog has now become sterile, as, of course, he would sooner or later become on the loss of his testes. With regard to the cats there seems to be a wider limit. These cats were four in number, and upon these four, five experiments were made. Up to the end of the first seven days spermatozoa were abundant, but without motion.

It is to be regretted that in all these casese where spermatozoa, although present, were motionless, Obolonsky's experiment of adding a weak alkaline solution to the semen was not tried, as it is very possible that the spermatozoa would have become endowed with motion and the semen become practically a fertile fluid. Probably this takes place in the natural condition when the spermatozoa come in contact with the alkaline secretion of the uterus, and it is likely that the secretion of this organ is alkaline for the very purpose of securing the viability of the spermatozoa and the consequent fertility of the semen.

In the guinea-pigs we find a curious condition of affairs. Three of these animals were used for the purpose of experiment and on these three animals seven experiments were made, two upon one animal and four upon another. In these three animals, although the spermatozoa were fairly abundant up to the fourteenth day after the castration, in none of them was the spermatozoa found to be endowed with motion outside of the body; and in two experiments—the ones made upon the seventeenth and twentieth day after the operation—degenerative changes had taken place. In one—that is on the twenty-fifth day—the spermatozoa were entirely absent, and on the seventeenth day, although they were present, it is very evident that they were not normal, and probably not fertile.

Let us turn now from animals to man and note what has been found in those individuals who have been castrated as regards the question of their fertility or sterility. Krugelstein, in Henke's *Zeitschrift der Staatsarzneikunde*, 1842, relates the case of a merchant who had both testes removed for some disease. The wound healed and he married.

His wife became pregnant. In addition to this case others are noted, but as in many of them I have been unable to consult the originals, I have omitted doing anything further than report them by name. I refer to the cases of Cornelius Consentinus of Bohn; of Bellefontaine, of Zipans, and of Sanchez.

Sedillot, in his "Manuel Complet de Medecine Legale," borrows a case from Boyer, in which the latter was consulted by a man from whom he had at one time or another removed both testes for sarcocele. After recovery from the second operation he continued to cohabit with his wife, who became pregnant a short time afterward. The man, being somewhat disturbed, consulted M. Boyer, who in order not to "disturb the peace of the household," told the man that such a thing was quite possible, but added that it was his last child and if any others appeared he might be quite sure that they did not belong to him.

Krahmer[4] reports a case of a young peasant, twenty-two years of age, who performed self-castration with a razor. Both testes were entirely and thoroughly removed. Eleven to twelve days after the operation he had a seminal emission during his sleep. Unfortunately no examination was made for spermatozoa and it is only mentioned here as instancing the possibility of a seminal emission occurring twelve days after the operation of castration.

The last of all is the case which has been reported by Princeteau in the *Annales des Maladies des Organes Genito-Urinares* for 1890, taken from the "Proceedings of La Société d'Anatomie et de Physiologie de Bordeaux," in which the patient, a young man, had lost both testicles by castration from tuberculosis disease and in whom upon examination no trace or fragments of these organs could be found. Notwithstanding this fact the young man frequently practised coition, and had ejaculation of a fluid containing spermatozoa, of which Princetau showed some preparations.

Having now gone over all the cases, experimental as well as clinical, which have occurred in animals, as well as men which have been accessible to me, let us group them together and see what deductions we can draw from them. First, as regards the animals. Those taken from ancient authors are, of course, of no service excepting as being confirmatory of what has been subsequently proved by direct experiments. In these cases it is to be noted that no particular time has been assigned as a limit beyond which spermatozoa are not found until we come to the letter which was published in the *American Medical Library and Intelligencer* for 1838, by Mr. Joseph Warrington, with regard to the boar. He apparently was able to impregnate a sow two days after he had been fully castrated. Then come the experiments of Obolonsky and Masuraca, in which some effort is made to give a time-limit within which spermatozoa are found in the seminal secretion after complete castration. In Obolonsky's cases, which only include two experiments, the longest limit is thirty-one days after castration, a far longer time than Masuraca had been able to note in his experiments. If you remember in Masuraca's experiments on dogs, the viability of the spermatozoa in the dog appeared to be extinct after the fifth day, for although at that date the spermatozoa were normal in appearance, they were but few in number and endowed with feeble movement. In the dog which was killed on the seventh day after the operation, the vesiculæ seminales were found to be devoid of spermatozoa. I should be inclined, therefore, to regard with some suspicion the experiment of Obolonsky, in which he found viable spermatozoa thirty-one days after castration, and to believe that some mistake had been made as to the number of days after castration in which the examination for spermatozoa had been made.

---

[4] "Handbuch der Gerichtlichen Medizin," 1857.

As regards the cats, four of which were experimented upon, up to the end of the first week (seven days) spermatozoa, perfectly normal in appearance but without motion, were found, but no examination was made between the seventh and the twenty-fifth day afterward on the last cat. In this animal no spermatozoa, were found, nor were there any bodies which looked at all like them. In the cat, therefore, as well as in the dog, we must place the limit at seven days.

The guinea-pigs, however, showed spermatozoa up to fourteen days after the operation, but in none of these cases, even when examined shortly after the operation (four days), did the spermatozoa seem to be endowed with motion. On the seventeenth day the same guinea-pig, which at the end of the fourteen days showed an abundant number of spermatozoa, exhibited seventeen days after the operation nothing upon examination but a diminished number of spermatozoa, with evident degenerative changes going on in the epithelial cells and elsewhere, and three days later no spermatozoa at all, so that it would appear as if the guinea-pig was capable of retaining normal spermatozoa for a fortnight after the removal of the testes.

If we come to man we are at once brought fact to face with this fact: that with the single exception of Princeteau's case we have no data to show how long after castration the human semen contains spermatozoa. That it does do so up to a certain time is shown by Princeteau, but what that limit is it is impossible to say, for he has neglected to give the length of time after castration at which the semen was examined. If, however, we argue by analogy from animal to man, we shall perhaps be justified in saying that if coitus take place within seven days after castration, impregnation of the woman may occur if all the conditions are favorable. But suppose the intercourse take place ten or fourteen days after castration, can the eunuch become a father? Is he capable of procreation? To this question in the present state of our knowledge it is impossible to give a definite answer, but the probabilities are that it would be in the negative, although Gould and Pyle[5] state that spermatozoa have been found days and weeks after castration, and the individuals during this period were capable of impregnation. These gentlemen do not give any authorities for this extraordinary statement.

To sum up the conclusions at which I have arrived in studying this question, I should state them as follows:

1. In animals, for a varying period after complete castration, normal spermatozoa are found in the contents of the seminal vesicles.

---

[5] "Anomalies and Curiosities of Medicine."

2. This period varies in different animals, being six days for the dog, seven days for the cat, and fourteen days for the guinea-pig.

3. In man, clinical cases are recorded where fecundation of the female has occurred after coitus with the male who has been completely castrated, but in accepting the correctness of such statements we must remember the adage that accidents may happen in the best-regulated families. Still, Princeteau's case (if correct) proves that spermatozoa do exist for a certain time in the seminal vesicles of a eunuch, and arguing from analogy in what occurs in animals this is quite probable.

4. Still pursuing the analogy, in man, as in the dog and cat, a complete castrate *may* be capable of procreation provided the coitus occur within the first seven days after the castration.

YELLOW FEVER AND THE ABUSES OF QUARANTINE IN THE SOUTH DURING THE EPIDEMIC OF 1897.[1]

By DILLON J. SPOTSWOOD, M.D., of Mobile, Ala.

> Thus great Achilles who had shown his zeal
> In healing wounds, died of a wounded heel.
> —O. W. HOLMES.

On the 13th day of September, 1897, the first case of yellow fever in Mobile was officially reported to the local board of health by Dr. Edwin L. Marechal. Though an epidemic of suspicious fever had been prevailing in Ocean Springs, Miss. (distant about fifty miles from Mobile and eighty from New Orleans), since July, 1897, and which had on two occasions been investigated by "experts" from Louisiana, Alabama, and Mississippi, not until September was it recognized as yellow fever. During all of this time constant communication had been kept up between Ocean Springs, Montgomery, Mobile, New Orleans, and other towns of importance in the Gulf region.

On the 14th day of August, 1897, Dr. J. M. Holloway, of Louisville, Ky., reported to the Louisiana and Mississippi boards of health that he had treated a well-marked case of yellow fever in the person of a man recently arrived from New Orleans. Yet the prevalence of yellow fever in New Orleans was not officially known until September, 1897. Though there had been a great deal of fever prevailing in Mobile and some cases of a suspicious nature as early as July 26, not until September was a single case reported as at all doubtful.

Is it not pertinent, under the circumstances, to ask which of the many state and local boards of health was responsible for the almost criminal negligence of allowing an infectious disease to be spread broadcast through the country? The reign of terror under the regime of the "shotgun quarantine" and the numerous town, city, and county boards of health has been already too vividly described by the press despatches and correspondents of our daily papers to require more than brief mention. There were two occurrences, however, that were so lawless, unnecessary, and brutal in their nature that one shudders to think that selfish fear could make such unfeeling, canting cowards out of human beings. The writer details them as of special interest. On September 5, 1897, eight days before a case of yellow fever was reported in this city, Mrs. D., an old lady, left here to visit her son in Selma. Her stay there was uneventful until September 14, when she was informed by the authorities that she must leave the town and go to the "detention camp" some miles distant and remain for twenty days before returning to the city. She protested that she had violated no quarantine law as she had left Mobile eight days before yellow fever had been reported. In spite of her protests and her son's influence she was dragged from her comfortable home, placed in a leaky country log-cabin, not good enough for pigs to occupy, and fed upon food of which a decent cornfield negro would have complained. To cap the climax, the food was served on tin plates without knives or forks. She begged them to allow her to return to Mobile and face the danger of infection, or to go anywhere rather than die of hunger and neglect. But all to no avail. She was compelled to remain for twenty days, contracting rheumatism, from which she has not yet recovered. And all of this was done by order of the "august" Dallas County Board of Health, composed of medical men (?). Shortly after yellow fever had been reported a train-load of refugees was passing through Montgomery, en route to Atlanta. Before reaching Montgomery, every window and door had been shut by order of the "health" authorities. A gentleman who had been almost overcome with the heat and dust had the courage to open a window—immediately a gun was pointed at his head and he was informed unless that window was closed at once he would receive the contents of the gun.

---

[1] *Medical News.*

Are there recorded in Spanish history any acts more brutal than those perpetrated by "shotgun quarantines?" A condition of affairs little better than anarchy existed for more than two months in the Gulf States. Federal, state, county, and municipal health authorities were in constant conflict.

To show the utter disregard in which the State Board of Health and State Health Officer were held by county boards: The Health Officer of Alabama issued an address to all the county boards of the state, instructing them to recognize health-certificates of the United States Marine Hospital Service after the holders had been subjected to ten days' detention in the government camp. Without an exception they refused to follow the instructions of the health officer, the majority making twenty days the limit of detention. Not only did the county boards treat with contempt the State Health Officer's instructions, but they actually restricted his movements. He attempted upon one occasion to go from Montgomery to Mobile and was informed by the Montgomery board that if he visited Mobile he would be quarantined and not allowed to return for twenty days. Nor was the condition of affairs in towns and cities any better. A "rigid" house quarantine was established by the Mobile Board of Health, which consisted of one guard stationed at the front gate of the infected house, the back gate and side entrances being unguarded and free to exit and entrance. Much to the disgust of the olfactories, and little to the discomfort of microbes, crude carbolic acid was freely sprinkled in the streets, while back yards and alleys were neglected. But the most absurd performance was the senseless quarantine that was kept up during the entire epidemic against other infected cities, while every portion of this city was infected.

The maintenance of the house and other quarantine cost thousands of dollars that might have been spent in improving the wretched sanitary condition of the city.

Some quarantine regulations were really amusing: A barrel of carbolic acid that was shipped to Selma had to be thoroughly fumigated before it was allowed to be landed in that town. A large load of rocks from a hundred miles up the Tombigbee river that passed down the river (by the city) had to be "disinfected" before it was unloaded at Fort Morgan, where the material was to be used in building harbor defenses. No doubt the health authorities had detected numerous "yellow microbes" upon the wharves, anxiously awaiting the approach of the barge, to pound upon the unsuspecting rocks. So absurd were the quarantine regulations imposed by the Selma health authorities and the intervening counties that the officers of the Mobile and Birmingham Railroad had to discontinue all trains over their road until quarantine was raised. Is it any wonder then that the quarantine has a much greater terror for all sensible people than the dreaded yellow fever itself? Is it any wonder that all classes of business men cry aloud to the government to save them from the local quarantine fiend and establish a national quarantine, based upon reason, justice, and humanity; quarantine regulations that may be enforced without paralyzing business and stifling commerce? Would it not be a wise step for the people of the South since the war with Spain has ended to discuss some plan to repel an invader more fatal to human life and the prosperity of the country than a hostile host of armed men? Should not a foreign disease be treated as a foreign enemy and the entire strength of the nation be centered in the federal governmnt to deal a death blow to pestilence; to establish system and order, where chaos and confusion now reign supreme, among local quarantines? In the name of humanity, of decency, of common sense and reason, let the medical profession implore the people of the South to change their present system of criminal quarantine regulations that has been such a reproach to our honored profession.

Having in the first part of this article given a general idea of the outrages perpetrated upon the people of the South in the name of quarantine, the last part will be occupied in giving the symptoms and treatment of a few cases of the disease.

It is interesting to know that the death rate in yellow fever in private practice is less than 10 per cent.; yet upon the advent of yellow fever in the early fall out people rush at a breakneck speed to localities where scarlet fever, small pox, diphtheria and typhoid are indigenous, any one of which has a higher death rate than yellow fever. When seen in time and properly treated, yellow fever is to be far less dreaded than typhoid with all of its complications and dreaded accidents that may occur at any hour.

The greatest difficulty in the management of yellow fever is the diagnosis. As the veteran Creole physician, Faget, of New Orleans, has tersely remarked: "Is the diagnosis of yellow fever well established? It is not."

From severe attacks of remittent and dengue it is exceedingly difficult to differentiate. It is entirely out of the question to be at all dogmatic in the diagnosis of yellow fever. The following prominent symptoms which are by no means pathognomonic may be noted in well-marked cases: Want of correlation in pulse and temperature; slow pulse and high temperature. Besotted or bloated appearance of the face and eyes as if the patient were just recovering from a debauch. A full and uneasy sensation about the stomach, with tenderness upon palpation. Intense pain in head, back and limbs. Neuralgia of eyelids that may persist throughout the attack. About the third or fourth day albumin may appear in the urine, but it is absent in a great many cases. There may occur suppression of urine, also, about the fourth or fifth day, which may be considered among the most dangerous symptoms. Jaundice sometimes appears as early as the third day, but is oftener postponed until the later stages. It may be general or circumscribed, the icteroid hue being confined to the conjuctivæ, forehead and cervical region. Late in the attack the pulse may become very rapid and weak, the patient sinking rapidly. Hæmorrhages sometimes occur from the nose, lips, gums, and bowels. Fissured lips, with a sero-saguinous discharge and the formation of dark-looking scabs, are common in severe cases.

The febrile paroxysm is by no means limited to seventy-two hours, as is dogmatically insisted upon by some authorities. The fever in many cases lasts for six, seven, and sometimes ten days in the severer cases. During the stage of calm, which is marked by a defervescence in temperature and a decline of the more acute symptoms, the patient often expresses himself as feeling much better. This is the most critical part of the disease, the time of occurrence of the dreaded black vomit and suppression of urine. The inexperienced physician might be inclined to believe that the crisis had passed, but really this period of the disease is attended by more danger than any other.

Is it possible to make a diagnosis of yellow fever under three or four days? It is not. At least three of the prominent symptoms should be present, together with a history of exposure to infection. From fatty infiltration of the heart the general circulation is impaired, hence if a vascular portion of the body, as the face, forehead, or neck be pressed upon with the finger, a white spot is made, and upon the removal of the finger the circulation is much longer in returning to the anæmic area than in other cases. The sluggish circulation accounts for the dusky, livid color of the face and injected conjunctivæ.

I have now described briefly the most prominent symptoms of yellow fever, yet any physician who has had anything like an extended experience in the treatment of fevers will tell you he has seen the identical symptoms in both remittent and dengue. Fortunately for science and the reputation of the physician, death almost invariably occurs among the first two or three cases in the beginning of an epidemic, and an autopsy removes all doubt. It must be very evident to the practitioner, even of limited experience that in a self-limiting disease whose etiology is a specific poison not yet definitely known, the only treatment to be thought of is to combat the symptoms as they appear. No routine is possible in contending with this fever. However, there are certain rules that must be adhered to; these more properly come under the direction of the nurse: (1) Keep your patient in the recumbent position during the entire attack. Never allow him to get up to void urine or move the bowels. Always use the bedpan for this purpose. (2) Have the room thoroughly ventilated, but avoid drafts on the patient. (3)

Keep him quiet, allowing no one in the room except the attendants and near relatives. (4) Use only the covering that is comfortable for the patient. No good and much harm is derived from profuse sweating under blankets. (5) Never crowd the stomach with fluids. Use crushed ice and cold drinks in small quantities often repeated. (6) If possible, keep the patient in ignorance as to the nature of his disease. People have been known to die of fright when told they had yellow fever.

According to Sternberg the secretions in the alimentary canal become very acid during an attack of yellow fever. To neutralize this condition he has recommended the following:

Hydrarg. bichlorid	gr. $^{1}{}_{3}$
Sodii bicarb	ʒ iv
Aquæ	Oij

M. Sig. Two tablespoonfuls, ice cold, every two hours.

I have substituted the following with excellent results:

Sodli bicarb	ʒ iv
Aqua menth. pip	Oij

M. Sig. Two tablespoonfuls every two or three hours, ice cold or with crushed ice.

Sodii sulphocarbolatis	ʒij

Ft. pulv. No. 8. Sig. One powder every three hours with soda solution.

The sulphocarbolate of sodium very often quiets the stomach where the bichlorid causes nausea and vomiting, besides the antiseptic effect is equally as efficient as the mercuric salt. For hyperpyrexia there is no better antipyretic than ammonol, gr. vj to gr. viij, with a tablespoonful of whisky or a teaspoonful of aromatic spirits of ammonia every two hours until the fever falls below 102.5° F. I have not in a single case noticed any depression, cold sweating, or cyanosis from the use of this remedy, as often occurs with the use of the other coal-tar products.

At the outset of an attack, if a purgative is required (which occurs ninety-nine times out of a hundred), the following should be prescribed:

Hydrarg. chlor. mitis	gr. vj
Sodii bicarb	gr. vj
Aq. menth. pip	*m.* ss
Sacchar. lac	gr. x

Ft. pulv. No. 2. Sig. One powder at once, and repeat in six hours if bowels have not moved.

A tablespoonful of good brandy or whisky in a wineglassful of crushed ice should be given every three or four hours. As the stomach for the first five or six days of the attack is not capable of digesting any kind of food none should be given; the alcohol must be depended upon to supply the required nourishment. If conditions make it necessary, liquid food by the rectum may be resorted to. It is of the utmost importance that nothing be given that in the least deranges the stomach, for there can be no doubt that black vomit is due to the constant irritation of the stomach by foods and medicine. It were better that all medicine be discontinued than for the patient to have an irritable stomach and have him exposed to the danger of black vomit. Where there is great depression and an unusually slow pulse, strychnin sulphate, 1-40 of a grain, and nitroglycerin, 1-100 of a grain, should be given every three hours, and the dose of alcohol increased. In one of my cases the pulse ran as low as 39 to the minute, when strychnin and nitroglycerin were given every two hours for two days with good results.

For suppression of urine good results have been obtained from calomel in $\frac{1}{2}$-grain doses every hour or two. Hot applications and counter-irritation over the kidneys have given favorable results. The fatty infiltration of the heart and other important organs requires that the convalescence of this fever be handled very cautiously. The diet should be most guarded and the return to normal feeding must be accomplished in the most careful and gradual manner. Many a life has been sacrificed to a whim of the palate. Out of some two hundred cases of fever treated by me last fall thirty were yellow fever, and it is not without a feeling of pride that I can truthfully state that I lost not a single patient. The clinical histories of three typical cases are herewith appended.

CASE I.—W. C., male, aged twenty-four years; American, native of Mobile, Ala. Temperature ranged from 104° F. on the first day of the disease to 98$\frac{1}{2}$° F. on the tenth day; pulse ranged from 114 to 50 during the same period. For five days after the tenth day the pulse ranged from 40 to 50 with normal temperature and great prostration. Albumin appeared in the urine on the third day. Terminated in recovery.

CASE II.—G. K. C., male, aged thirty-five years; American, native of Monroe County, Ala. Temperature first to tenth day ranged from 104° F. to normal; pulse from 84 to 58. On the tenth, eleventh, twelfth, and thirteenth days the pulse went as low as 39 and was almost imperceptible at the wrist. Recovery.

CASE III.—Jno. R., male, aged twenty years; American, native of Mobile, Ala. Temperature ranged first to tenth day 102° F. to normal; pulse, 88 to 80. There was intense neuralgia of the eyelids and hæmorrhages from the gums, lips, nose, and bowels. Recovery.

In the long list of details, which, of course, are too numerous for all to come within the scope of this article, the writer has forgotten to mention the management of nausea and vomiting. A great many remedies that have been used in ordinary cases of sick stomach may be resorted to. I have found cocaine hydrochlorate in $\frac{1}{4}$-grain tablets dropped on the tongue and swallowed rapidly will relieve the most intense nausea. Given in solution it is absorbed by the mucous membranes before reaching the stomach. A small ice-bag or an ice-cold towel placed low down on the throat and the face sponged with cologne-water will greatly assist the cocaine. Three grains of bismuth subnitrate and 1-10 of a grain of calomel given with 5 grains of sugar of milk and 1-10 of a drop of oil of peppermint every hour or two will sometimes relieve the patient. The old remedy of burning the epigastrium thoroughly with a mustard plaster should never be neglected. Finally, when all have failed, morphin and atropin, hypodermically, may be cautiously used. The phosphate of codein should be tried first.

SPRAYS AND INHALENTS.[1]

By SETH SCOTT BISHOP, B.S., M.D.,
Professor of Diseases of the Nose, Throat and Ear in the Illinois Medical College;
Professor in the Chicago Post-Graduate Medical School and Hospital;
Consulting Surgeon to the Mary Thompson Hospital, etc.

Inhalents administered by means of spraying and vaporizing apparatus have come into very general use among Americans. This is attested by the large number and variety of preparations and devices for spraying that have become aspirants for the favor of the profession during the last few years.

Many inquiries are made, indeed, scarcely a day passes that letters are not received from physicians concerning atomizers and inhalents, and it is for the purpose of answering many at one writing that these notes are made.

First, as to the atomizing instruments that have proved satisfactory. For coarse sprays the DeVilbiss atomizer answers the purpose admirably. It is made for use either with a hand bulb or with fittings for the compressed air cut-off. On my suggestion, Dr. DeVilbiss added a flange to this atomizer corresponding to the flange on my improved middle-ear inflator, so that the instrument is held securely in its connection with the air cut-off while in use. This arrangement prevents the current of air from throwing the atomizer out of the operator's fingers. The DeVilbiss instrument has the best revolving adjustable tip I have ever seen. The Davidson atomizer, with straight and curved tips, gives satisfaction. An especially good characteristic is that it does not leak.

There are several excellent devices for producing a very fine nebulous vapor, which is especially adapted for administering quite strong medicaments, and for bronchial and pulmonary affections. The globe nebulizer possesses several advantages that are worth our consideration. The recently improved instrument is a very perfect contrivance. It is strongly constructed; it allows of many combinations of inhalents contained in its several globes by merely turning one or more valves; it has an air-current interrupter; it produces an exceedingly comminuted vapor that penetrates the air passages very deeply, and it is, withal, a useful ornament to one's office.

The dilator produces a very fine nebulous vapor also, and it is well adapted for inflating the middle ears and the lower respiratory passages. These instruments permit of using remedies very much stronger than the air tract would tolerate in the form of coarse sprays. Ten and 20 per cent. solutions of camphor-menthol can be employed in these instruments, whereas, we must limit ourselves to about one-half to one-seventh of these strengths in the coarse sprays. The minutely vaporized sprays do not bathe the mucous membrane with the oleaginous medicaments. They are comparable to the alkaloid preparataions as compared with the grosser forms of medicines for internal medication. We produce the effects of the remedies with a minimum amount of the agent used. A powerful impression of the 10 or 20 per cent. solution of camphor-menthol in benzoinol can be made without a perceptible quantity of the drug appearing on the surface.

---

[1] *The Laryngoscope.*

This brings us to the question of inhalents. There is no dearth of these preparations at our command, but, like men, some are better than others. For softening, dissolving and washing out discharges and crusts that cling to the mucous membrane I employ largely alkaline solutions. I have found the following formula an excellent one:

Acidi borici	aa. ʒ ii
Sodii bicarbonatis	
Sodii chloridi	
Glycerini	ʒ iii
Aquæ rosæ	℥ iv
Aquæ	q. s, ad oi.

Filter and use as a spray.

It is essential to effectively cleanse the diseased surfaces before applying the remedies that are to remain in contact with the membrane for a considerable time. Many of the sprays in common use are made to have an acid reaction, probably on account of the bactericidal action of the acids, but if the douches are alkaline they will the more readily remove the discharges and incrustations, and they are much more agreeable to the patient. The latter point is not to be overlooked in treating a certain class of patrons whose comfort a surgeon cannot ignore without loss.

For a permanent medicinal effect on the mucous membrane inhalents should be combined with a purified petroleum oil, and it is better that this oil should be rendered always antiseptic and disinfectant. These requirements are admirably complied with in benzoinol. The addition of the balsamic resin, benzoinum, to the oil adds the germicidal property of an acid, besides the slightly stimulating effect of benzoin, to the emollient and protective qualities of the oil. This affords an ideal base for various therapeutical combinations for medicating the respiratory mucous membrane.

Simple benzoinol has proven very efficacious as a detergent and protective spray in acute inflammatory conditions of the nose and throat. For home treatment patients are given a simple, inexpensive hand-atomizer with a 3 per cent. solution of camphor-menthol for use every morning and night, and even oftener during the acute stage. When the inflammation involves the larynx and trachea, or the bronchial tubes, great relief is obtained from inhalations of pure camphor-menthol placed in the benzoinal inhaler half filled with hot water. Ten drops of this remedy are added to the water, which must be hot enough to generate steam, but the lips can embrace the woodencased nozzle without discomfort. This is a cheap but effective method of administering hot, moist inhalations. The soothing effect of steam is desirable as an auxiliary to the medicine.

In the many possible combinations of benzoinol we may obtain the antiseptic effects of carbolic acid, creosote, eucalyptol and iodine, the stimulating qualities of benzoin, cubeb, menthol, etc., and the drying property of pine needle oil.

The camphor-menthol preparations possess antiseptic qualities. They also contract the capillary blood vessels of the mucous membrane, reduce swelling, relieve pain and fullness of the head, due to nasal stenosis in acute rhinitis, arrest sneezing, check excessive discharges and correct perverted secretions.

In the attacks of sore throat that occur during the spring and autumn changes of the weather, where we find the rheumatic or gouty diathesis, salol and wintergreen are indicated for topical applications, in addition to the internal administration of sodium salicylate and lithium. The following formula is well adapted for this purpose:

Salol	3	per cent.
Oil of gaultheria	4	"
Thymol	3	"
Benzoinol	90	"

Patients can use this spray three or four times daily with a hand-atomizer for home treatment and derive much comfort and benefit.

In tuberculosis of the nose and throat, whatever in the least mitigates the unhappy condition is worthy of our consideration. The atomizer puts some power of local self-treatment within the reach of the sufferer. It is possible for the patient to cleanse, disinfect, stimulate and protect the diseased membranes as far downward in the air tract as the larynx, at least. For such purposes, in the preulcerative stage, the following formula is indicated:

Aristol	10	per cent.
Menthol	3	"
Benzoinol	87	"

After ulcers have formed and difficult and painful swallowing become prominent symptoms, the following formula can be advantageously employed by the patient:

Creosote	4	per cent.
Carbolic acid	3	"
Oil of tar	3	"
Oil of wintergreen	4	"
Benzoinol	86	"

Self-treatment with this spray will not interfere with the physician's application of cocaine, eucaine, acetic acid, etc., according to the indications in each case.

In the most common catarrhal conditions of the nasal passages the formula that follows has given especially good satisfaction:

Camphor-menthol	3	per cent.
Pine needle oil	2	"
Eucalyptol	1	"
Benzoinol	94	"

For those numerous cases in which there is too great activity of the mucous glands, the siccative effect of the pine needle oil is indicated, in addition to the camphor-menthol. The eucalyptus is antiseptic, destructive to low forms of life, and pleasant, and the soothing and protective qualities of the benzoinol are all that could be desired.

ORTHOFORM AND EXTRACT SUPRARENAL GLANDS.[1]*

By W. CHEATHAM, M.D.
Professor of Diseases of the Eye, Ear and Throat in the Louisville Medical College.

Cocaine and other local anesthetics, on account of their toxicity, are not safe applications for burns and wounds. In orthoform, a more recently discovered drug, which is prepared from cocaine, the latter being as we know benzoyl-ecgonin-methylether. Einhorn and Heinz, after many experiments by which they developed forty or more substances, claim to have found in orthoform, which is the methylether of para-amido-methoxybenzoic acid, a safe local anesthetic for large ulcers, burns, and abraded surfaces.

It is a white crystalline powder without odor or taste or but little taste. It is only slightly soluble in water, which is one of its virtues, as it will stay in contact with the raw surface and dissolve slowly. The hydrochloride is soluble in water, but being acid in reaction, is not so suitable for local application, and not at all for injection hypodermatically. The anesthesia occurs only when it comes in contact with mucous membrane of abraded surfaces, and then only where the powder touches; it is consequently better to use it in a very fine powder or as an ointment. Used in the eye as a powder it reddens the conjunctiva a little first, produces slight pain, then anesthesia. It is said to be absolutely non-poisonous. Large doses have been given with no bad result. It is "energetically antiseptic." It not only prevents putrefaction, but checks it after it has begun. Its anesthetic properties, or rather anesthesia from its use, lasts for hours; it is said to last thirty-six or forty-eight hours. It has been used with excellent results in transplantation operations, or in many operations or traumatic cases in which the ends of the nerves can be reached; not of any service in closed wounds; it has been used with excellent results in burns of the third degree, ulcers, excoriations of the nipple, anus, vagina, etc. In painful moist eczemas, ulcerations of the tongue and of the throat, it gives excellent results, especially in cases of tuberculous ulceration of the throat with painful deglutition. Orthoform in form of hydrochloride in spray, or a weak cocaine solution, can first be used to produce local anesthesia, then insufflation of the powdered orthoform, which at first is a little painful, but which is said to continue the anesthesia for many hours, thus relieving the distressing symptoms seen in such cases.

In ulceration of the stomach the hydrochloride is indicated. In ulceration of the intestinal tract lower down it could be used, I should think, by covering it with salol, so as to not be absorbed until it reached the part.

In the nose I think it better to use it in the form of an ointment, as the powder would soon be washed away or blown out. I have used it with great success in three severe cases of rose fever; in two cases, combined with extract suprarenal gland, the result was excellent. I have used it in form of an ointment, from ten to twenty per cent., with lanoline on vaseline cerate with great relief when cocaine had failed.

---

[1] *American Practitioner and News*, August 15, 1898.

* Read before the Louisville Medico-Chirurgical Society, June 17, 1898.

At the Munich Surgical Clinic the observations hitherto made on wounds of various kinds, on burns of second and third degree, on ulcers (luetic, varicose, carcinomatous, etc.), on dental caries, etc., may be summarized as follows:

1. Loss of sensation commences on the average three to five minutes after application, whether as powder or ten or twenty per cent. ointment.

2. The anesthetic action continues on the average for about thirty hours, in many cases even for three or four days. Only in one case did the action last scarcely two hours, the powder being carried away by copious secretion.

3. Diminution of secretion is always observed, a feature which is very valuable, for instance, in transplantations, where the grafting of the transplanted skin is promoted. The reduction of very copious and troublesome salivation in a case of inoperable cancer of the cheek was also noted.

4. Non-poisonousness is demonstrated by the fact that in a case of carcinoma two ounces weekly were applied without any bad effect.

5. As regards antiseptic qualities no special experiments were made on patients, but no bad influence on wounds was experienced. Purulent discharge was never occasioned, but when present ceased shortly after application of the powder.

A few moments ago I mentioned the extract suprarenal gland used with orthoform. I wish to speak of the suprarenal gland extract only as to its local use in the eye and nose. Its action is upon the vasomotor system; it is a strong astringent. It blanches congested or inflamed tissue quickly; for this reason and for its anæsthetic properties it is a great adjunct of cocaine, which we know has little or no effect upon inflamed tissue. Constringe the vessels though with the suprarenal gland extract, and cocaine acts nicely. The suprarenal gland extract also seems to penetrate deeper as tenotomies of the eye muscles. Iridectomies and operations in which cocaine alone does not prevent pain entirely give but little pain when the two medicines are combined. The best form in which to use it is a solution of ten grains of the dried extract in half an ounce of water. The aqueous solutions degenerate in light and air, so should be made fresh daily. The dried glands keep indefinitely almost. Phenic and boric acids preserve the solutions some. I have used the solution with and without cocaine with good result.

We all know the bad effects of cocaine used in the nose and the danger of its use becoming a habit. I have used instead in rose fever, as I before mentioned, orthoform with extract suprarenal gland or the extract alone in vaseline. It does not form a solution, only a mixture. I warm this in a De Vilbir's spray and use it in the nose. Orthoform does not shrink the engorged turbinal tissue but little, but the extract suprarenal gland does. It checks excessive secretion; it acts beautifully in rose fever or acute coryza from any cause. Internally its action is said to resemble that of digitalis very closely.

The following letter has been received from Parke, Davis & Co., in response to request from one of the Louisville druggists:

We are in receipt of your favor of the 10th June, inquiring whether it would be possible to prepare a concentrated suprarenal gland solution in vaseline or alboline oil.

We regret to inform you that such a preparataion is not feasible. We have prepared of late on several occasions a liquid preparation of the suprarenal gland for local applicataion in eye diseases (conjunctivitis, etc.). Thinking that your friend might be able to use a concentrated watery solution, we take pleasure in sending you a small sample. This solution is a rather concentrated one, one part being equal to about twelve parts of the fresh suprarenal gland. The solution contains one per cent. boric acid. We have prepared several lots of this suprarenal gland solution, but have so far been unable to prevent a slight precipitation after standing for some time. This, however, is not due to deterioration. When protected from light in a cool place the preparation will keep for some time. Heating does not destroy its activity, yet we have found that repeated heatings have at least some weakening effect. It might also interest you to learn that alcohol, although not changing the active principle chemically, almost entirely destroys the physiological properties. For this reason we are inclined to believe it will be impossible to prepare an active preparation of the suprarenal gland that will be miscible with mineral oils. We have tried to bring the solution to dryness. The residue, however, is of such a hygroscopic nataure it prohibits us from marketing the product in a dry form. You will please understand that this product is merely an experimental one and that it is not listed among our regular preparations.

POTASSIUM IODIDE IN CEREBRO-SPINAL MENINGITIS.[1]

By H. A. MOODY, M.D., Mobile, Ala.

The object of this brief paper is to emphasize the value of potassium iodide in meningitis, especially in that severe and fatal form known as cerebro-spinal meningitis.

Since deciding to present this subject I have looked through quite a number of the authorities most frequently consulted by the general practitioner, to form an approximate estimate of the appreciation in which this drug is held in the treatment of meningitis. I find that its use is recommended by many of them, but seldom during the stage in which I have found it most efficient. Biddle does not mention it in this connection: neither does Hare in his shorter work, the one most frequently consulted. Potter recommends a longer course of it during convalescence. Wood does not recommend it; neither does Stillé.

---

[1] Presented to the Section on Materia Medica, Pharmacy and Therapeutics, at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7–10, 1898.

Bartholow recommends it to remove adventitious products after the acute attack has subsided. Skinner reports Dr. Valten as asserting that it acts almost as a specific in epidemic cerebro-spinal meningitis. Flint says that symptoms of oppression call for potassium iodide. Von Ziemssen states that in a later period of the disease it is of great service. Osler merely remarks that iodide of potassium is warmly recommended by some authors. Aitken says, "no real proof of its utility has yet been brought forward." From the above it will be seen that we are not much encouraged to employ it by those authors most frequently consulted by the general practitioner.

Thirty years ago Tanner said: "With regard to medicines directly modifying the morbid action I know only of one in which the least reliance can be placed—the iodide of potassium." My own experience in the treatment of meningitis leads me to endorse the position of Dr. Tanner. I have witnessed two epidemics of cerebro-spinal meningitis, in the first of which the iodide was not used to any efficient extent, while in the second it was the principal element in the treatment.

In the first epidemic the treatment was purgation, morphine, chloral, the bromides, ergot, blistering and venesection. Nearly all the patients died; some in a few hours, others after many weeks of suffering. Venesection received the credit of saving a few lives, but as a rule both doctor and patient lacked the courage to employ it with sufficient boldness for efficiency. In the protracted cases the iodide was used to promote absorption, but seldom proved effectual.

Ten years later I was called to visit another community stricken with cerebro-spinal meningitis. To illustrate the violence of the epidemic, I will briefly relate its history. It originated in the home of a farmer whose house was a log cabin containing two rooms with an open passage-way between and a detached kitchen. It was built on low, damp, alluvial soil, and was much too close to the ground for the ventilation needed in southern climates. The family consisted of a man, his wife, and five children aged from eight to eighteen years. Water was procured from a well near the house, and the earth was so wet from spring rains that the water could be dipped out at the top of the well with a dipper made from a gourd. The man told me that before his family was attacked he noticed that some half-grown hogs running loose about the premises acted as though they were sick. He said that some of them "took fits and died."

His youngest boy, about ten years old, was taken with severe pain in his head, back and limbs. The physician who was called to attend him noticed a peculiar flea-bitten appearance on the wrists and chest. He suspected some eruptive disease, but the absence of any considerable rise of temperature puzzled him. The patient soon bcame comatose, and on the second day of his illness he died. Immediately after his death his mother was stricken and on the following day a brother and a sister developed the same symptoms. The physician became alarmed and sent for me to assist him.

I found the mother dead. The two living cases were suffering with severe pains in the head and back. Any touch upon the limbs provoked shooting pains; temperature but little over 100; pulse very soft and compressible, but regular and slow; there was a peculiarly soft, watery look of the eyes, as though there was lack of tension. There was a rose-colored eruption, thickest on the wrists and arms, but present in varying degrees all over the body. The spots varied in size from that of a pin-point to a fourth of an inch in diameter. They were evidently extravasations. Upon examining the body of the dead mother I found them much darker than on the living, but the doctor informed me that until her death the spots had been rose-colored. I learned that in three other families living near by the same disease had appeared that morning. Each of these new cases occurred in persons who had spent a night or two in waiting on those first attacked. I visited all the cases, and could not doubt the existence of that most terrible of diseases, epidemic cerebro-spinal meningitis. Many kind-hearted neighbors had assembled to help the afflicted family, but when the dreaded name, "spotted fever," began to be whispered among them all left the place except some five or six men who deemed it their duty to bury the dead and remove the survivors from the infected locality. There was a general stampede from the neighborhood, and it is interesting to note that although the disease developed in some of the fugitives it was not communicated to those among whom they had come. Extreme caution, however, was exercised to prevent any unnecessary communication with those who had been exposed.

Remembering the unsatisfactory results of the treatment employed in my previous experience, I decided to give the iodide of potassium a thorough trial as recommended so highly by Tanner. The adults were given from 6 to 10 grains every two hours, children receiving proportionate doses. Pain was controlled by morphine hypodermically administered, and ergotine was also given. Each case had a cantharidal blister on the occiput and the back of the neck. Light was almost excluded, as a matter of comfort and protection to the eyes, and liquid nourishment was given in small quantities.

The number of cases thus treated under my observation was ten, and other cases which I did not see were similarly conducted. One of the early cases, far advanced before recognized, died. There was no further mortality; the disease seemed to yield visibly as the patients came under the influence of the iodide. Few of them recovered without some permanent injury. Several had the sight of one eye destroyed by suppurative choroiditis. Some lost their sense of hearing. In one case there was paralysis of a limb. I attribute the preservation of life to the iodide, because the ergot, morphine and blisters had utterly failed in my previous experience. During the subsidence of the epidemic another case died in a town six miles or more from the point where it originated. How the disease was contracted is unknown, as there was no traceable communication with infected persons or places. The nature of the case was not recognized by the physician for several days. The treatment was first calomel and then quinine, then morphine, chloral and bromides. I saw the case a few hours before death; there was no eruption, but otherwise the symptoms were well marked.

Since the experience above related I have tested the usefulness of potassium iodide in quite a number of cases of sporadic meningitis, and my confidence in its utility increases with experience. Quite recently I administered 50 grains a day for six days to a child eighteen months old. Its father is a thoroughly equipped physician. He agrees with me that the iodide was the first medicine to exert any appreciable influence over the morbid process. The child recovered with the loss of its sense of hearing.

OPEN-AIR TREATMENT OF PHTHISIS.[1]

The opinions now held in regard to the treatment of tuberculosis are very different from those prevailing a generation or even a few years ago. Drugs were then generally regarded as the most formidable weapons with which to fight the disease, and the healing virtues of fresh air were almost totally ignored. However, as the study of bacteriology advanced, so also did the old-time views on the cause and treatment of consumption undergo a change, and Koch's discovery, that tuberculosis was produced by a microbe and was consequently contagious, gave the death blow to the existing remedial methods. On this side of the Atlantic the great benefit to be derived from pure air and suitable diet by those suffering from consumption has for a considerable time been fully recognized, and the treatment has been placed on a practical footing by the establishment of properly equipped sanatoria in various parts of the country. Some of the European countries, notably Germany, have followed our lead, while England has been the last to adopt the system, and, in fact, as yet has given it only a tentative trial. That in the United Kingdom the open-air treatment will be more widely followed in the future seems assured, as the movement to that effect is being warmly supported by many of the foremost English physicians. The *Practitioner* for June is devoted to a study of tuberculosis, and contains articles dealing with the disease from various points of view; but the writers of which are, one and all, agreed that climate, hygiene, and diet are the most powerful remedial agents. In the case of the wealthy these desiderata are naturally easily obtained, and the question of sanatoria affects this class to a comparatively slight extent; but for the poor or for those with but moderate means a sanatorium is almost a necessity. Until 1892 America was the only country which provided sanatoria for her poor, an example which has been since followed by Germany, Switzerland, France, Russia, Norway, and other countries. The results of treatment at these different sanatoria bring out one point in particular, namely, that the general methods of treatment are of greater importance than is the climate. Although an atmosphere free from moisture and with an abundance of sunshine, like that of Egypt, is the ideal one for a consumptive, yet most excellent results have been obtained from the open-air treatment in climates lacking these advantages. Dr. Léon Petit says: "In all the sanatoria, whatever their geographical position, the curative results obtained are nearly the same, provided that the hygienic method is applied there in all its scientific rigor. Here the climate may help the cure; . . . there it may hinder it. But it only exerts a secondary influence on the results of the treatment."

---

[1] *The Medical Record.*

From the mass of evidence adduced since the introduction of sanatoria, it would appear that the methods of treatment pursued in those establishments have been most successful, and go far to prove that these methods are the only rational ones. As Professor von Leyden recently said: "The possibility of treatment outside a sanatorium with equally good results cannot be denied, but it requires much more prolonged rest, and much more time on the part of the physician, and has by no means so certain a result. In any case I regard it as a great advantage if the patient can spend once or twice a period of several weeks or months in a good sanatorium."

THE TREATMENT OF ANAEMIA BY MOUNTAIN AIR.

Lépine (*Sem. Med.*, March 16, 1898) gives a summary of what is known as to the effect of altitudes on anæmia. Paul Bert first drew attention to this subpect in 1882 by finding that a given volume of a mountain animal's blood absorbs more oxogen under similar conditions than an equal quantity from an animal of the plain. More detailed experiments have confirmed this. Thus Müntz found that seven years after importing rabbits from the plain to the Pic du Midi (2,877 meters), the blood of their descendents differed greatly from that of those which had remained below. If the fixed matters, the metallic iron of the blood, and the oxygen absorbed be each represented by 100 for the plain animals, the corresponding numbers for the mountain animals are 139, 174 and 180. Still more striking were his results with sheep which had lived on the Pic only six weeks.

It is probable that several climatic factors are involved in this increase of hæmoglobin, but Regnard has shown that barometric depression alone is sufficient, for he obtained the same results by keeping guinea-pigs under a bell jar for a month under a constant atmospheric pressure corresponding to an elevation of 3,000 meters. Mercier again found that while counting the corpuscles of men and rabbits returned from the mountains to the plains, the daily decrease ceased on the barometer falling 13 mm., and in two rabbits there was even an increase of corpuscles. Whether on a mountain or under a bell jar the most noticeable alteration in the blood is an increase of the red corpuscles, which appears earlier and is more rapid than the increase of hæmoglobin. Egger has had the same results in man at an elevation of 1,890 meters; the average increase of red corpuscles after fifteen days was 16 per cent. Mercier confirms this.

Those observers (Loewy, Kohlbrugge), who have failed to note this property of mountain air, were not careful to exclude vitiating conditions from their experiments. All the most reliable evidence goes to show that the increase of red corpuscles is real and has nothing to do with a supposed concentration of the serum through evaporation. Viault and others have remarked the great number of small discs in blood received on elevated places, which are probably developing erythrocytes. This explains the fact that the hæmoglobin does not increase so rapidly as the corpuscles, since the young globules do not contain their full amount. Finally, Schauman and Rosenquist have observed nucleated red corpuscles in the blood of dogs and rabbits living for some weeks under a bell jar under a depression of 45 to 48 cm. of mercury. Suter and Jaquet found that in rabbits which had lived at Davos for four weeks not only was their blood one-sixth richer in hæmoglobin than that of those left behind at Basle, but the quantity was more per kilogramme of body weight (about one-tenth). The mechanism of the increase of red corpuscles is still not properly understood. It is certain that in healthy persons this increase is not permanent, but disappears on a return to the plains as rapidly as it came. However, the most important fact is that anæmic people retain more red corpuscles than they had before their mountain sojourn for so long after their return.

VENESECTION IN PUERPERAL ECLAMPSIA.—Van Roojen (*Journal d'Accouchements*, of Liége, May 29, 1898) was called in to a case of severe eclampsia following delivery. There were convulsions, albuminuria, œdema, and cyanosis. He opened the median cephalic vein and bled to 400 g. At once the patient began to improve, and no more fits occurred, although at the end of a month an hysterical attack was noted. An injection of 20 mg. of hydrochlorate of morphine was given after the bleeding. The improvement in the pulse was very distinct directly the heart had been relieved of a greater amount of blood than it could easily impel. Lambinon, of Liége, also reports a case of puerperal eclampsia successfully treated by venesection.

PROGRESS OF MEDICINE

SENILE PLEURISY.

Maurice Lemoine contributes an interesting article (*Jour. de Méd.*, July 25, 1898) on the occurrence of pleurisy in old people. Generally speaking, a primary pleurisy is very common in the later years of life, but its occurrence as a complication is much more frequent, and in the great majority of cases is a result of renal disease. Postpneumonic, tuberculous and cancerous forms of pluerisy are also met with, probably in this order. As to the nature of the pleurisy, the effusion is either serous or sero-fibrinous, the purulent form being very uncommon. The author points out that very often pleurisy with a large amount of effusion may be completely latent in an old person. Four varieties may be described. The first occurs in subjects who are apparently healthy. There may be merely some malaise, headache, and sleeplessness. Pyrexia may be completely absent or only very slight. There is no dyspnœa to speak of, and there may be merely slight pain in one side of the chest. On physical examination the existence of effusion becomes evident. The quantity of fluid may be considerable. This form is characterized by the very favorable character of all the symptoms; the fluid as a rule is absorbed spontaneously, though, it must be added, it has a tendency to return. The second form occurs in persons of somewhat impaired health. They notice that respiration is accompanied by some difficulty, and there may be nocturnal dyspnœa and breathlessness on exertion; sometimes some perimalleolar œdema. These symptoms are followed by a sudden attack of cardiac failure. Careful examination of the chest under these circumstances may show the presence of an unsuspected pleuritic effusion. Prognosis in this form is uncertain. Careful treatment may bring about absorption of the fluid, but in other cases, notwithstanding every care, cardiac failure or uræmia bring about fatal termination. The third form is more marked in its characteristics, there being cardiac dilatation, anasarca, Cheyne-Stokes respiration, and intense dyspnœa. In these cases pleural effusion is a late symptom. In the fourth variety the cause of pleurisy is pulmonary infarction, and the symptoms in this condition may be observed previous to the appearance of the pleurisy, which only supervenes towards the end of the second week. In addition to these varieties, tuberculous and pneumonic pleurisy are found among elderly patients, but do not differ in their symptomatology from cases occurring earlier in life. The writer points out that pleurisy in old people is of much longer duration, and consequently its prognosis is somewhat variable, and one fact worthy of note is that a second pleurisy may appear on the other side before the complete subsidence of the first. Sudden death in the course of a pleurisy the writer considers as very rare among old people. Treatment does not differ in these cases from the ordinary methods in vogue earlier in life.

DISEASES OF THE ALIMENTARY TRACT.

G. Rosenfeld (*Centralbl. f. inn. Med.*, July 23, 1898) first relates two exceptional cases occurring respectively in a woman aged 32 and a man aged 26. In both cases there was constipation, vomiting, inanition, and prostration. The urinary symptoms were remarkable, as the urine contained in both cases a substance which yielded osazon, with phenyl-hydrazin, and at times considerable quantities of acetone and aceto-acetic acid. In the first case there was also stupor. Diabetes was excluded. The symptoms must have been due to an auto-intoxication in both cases, which ended in complete recovery. The author then reports a case in which the Roentgen photography showed a spindle-shaped shadow in the region of the œsophagus and thoracic aorta. He introduced a tube open at the end, through which was passed a second thin tube having a ballon attached to its end. A solution of bismuth was then injected into the ballon, and a photograph taken. The fluid was then withdrawn, and the ballon inflated with air and a second photograph taken. In the latter case a light shadow could be distinguished from the dark shadow of the heart, and a diverticulum of the œsophagus was recognized. Rosenfeld then discusses the diagnosis of early carcinoma of the stomach. Blowing up the stomach may help in the diagnosis, but the Roentgen photography, with a sound containing shot, is of greater assistance in showing the connection of a very movable tumor with the stomach. This procedure may also assist in enabling the observer to recognize a tumor before it can be felt. In gastric carcinoma the stomach is rarely empty, even a long time after food has been taken. If this retention of food occurs in a small stomach, it is strong evidence in favor of carcinoma. The Roentgen rays, along with the sound containing shot, is the only reliable method of making out the size of the stomach. Thus if considerable remains of food can be washed out of a small stomach some fifteen hours after food, there is strong evidence of gastric carcinoma. This condition may exist even in the absence of regular vomiting or of any vomiting at all.

SCARLATINAL MYOSITIS.

Brück has observed three cases of myositis in the course of scarlet fever (*Gazz. delgl Ospedali*, July 7, 1898), occurring in the second and third weeks of the disease and after the subsidence of acute symptoms. This complication is unaccompanied by fever, and as a rule disappears rapidly. From a clinical point of view it can hardly be distinguished from ordinary muscular rheumatism, and is characterized by spontaneous pain, extreme sensitiveness to pressure and disturbance of motor function, with occasional increase in size of the muscles. The author's first case was in a girl, aged fourteen, who first noticed intense pain in the muscles of the back on the fifteenth day of the disease, rendering it quite impossible to sit up or to turn in bed. The pains increased in severity for two or three days, but disappeared on administration of salicylate soda. In the second case, the thoracic muscles were those principally affected; while in the third the abdominal muscles were so intensely tender to touch that it was impossible to make any examination. In the author's opinion these are cases of actual inflammatory change in the muscular disease.

NEED FOR A MILITARY BOARD OF SANITATION WITH EXECUTIVE POWER.

Dr. Morton Prince, of Boston, in a letter to the New York *Medical Record*, points out a serious fault in the organization of the Army Medical service, as follows:

The army organization expects that the army surgeon shall be sanitarian, as well as surgeon and physician, and it relies on a multiplicity of regimental officers, each representing semi-independent authority, so far as sanitary matters are concerned, for originating and enforcing measures for protection. The average physician has a limited knowledge of expert sanitation, and practically no experience in dealing with the problems of the suppression of disease. The difference of opinion among medical men in such matters—I do not mean expert sanitarians—is as diverse as were the colors of Joseph's coat.

The answer which is sure to be made to this is that "general recommendations" issued from headquarters, which it is expected that subordinate division and regimental officers shall carry out, are not satisfactory. Therein lies not the whole, but an active factor in the present ineffectiveness. It is expected that these orders will be carried out; commanding officers are to be "urged," says Surgeon-General Sternberg. But if they are not carried out, what then? Why, as General Sternberg says, "it indicates that the sanitary recommendations made in this circular have not been carried out." But meanwhile typhoid, dysentery, and yellow fever go on claiming more victims.

The underlying cause of this condition of things exists, I believe all sanitarians would say, in the system of organizataion which lacks a central supervising authority competent and with power to make regulations, and to enforce them without deferenece to the good will and co-operation of a multitude of regimental military officers, and which intrusts the treatment of the sick for disease, the surgical operations for wounds, and the prevention of contagious diseases to one and the same body of men. The separataion of these different departments has long been made in civil life, and there is no good reason why the sanitary department should not also be separated from the hospital service in the army.

A more efficient system than the present one would plainly be that which has been adopted in civil life. A sanitary board, distinct from the hospital service, and endowed, under proper limitations, with ample power not only to make regulations, but to compel their enforcement by the military department might be easily introduced in the army. There should be for each corps a sanitary department, consisting of either an expert sanitarian with staff or of a board of health officers, which should have the same relation, so far as altered circumstances permit, to the army organization that a health board bears to a city.

Such a board would have advisory functions in the selection of the site of camps of instruction, would investigate the origin and spread of contagious diseases, regulate the sale of dangerous articles of food by sutlers, select and guard the water supply, quarantine the sick, isolate commands in which some suspicious disease has broken out, and generally contrive the sanitation of camps. It would of course be subject to the authority of the commanding general and probably be a part of his staff, and perhaps issue its orders in his name.

It is not difficult to point out specific instances, even with a limited knowledge of the local conditions, in which during this war the services of such a department would have been of value. No expert sanitarian would have allowed such a site as that of Camp Alger to be selected, or would have allowed troops to be sent to any camp before there was a water supply; sutlers would not have been allowed to sell to the soldiers' at Tampa and Camp Alger lemonade made from the water of God knows what wells, with the risk of spreading typhoid.

It is safe to say that the houses in which some of our officers are said to have contracted yellow fever at Siboney, and which were later burnt by General Miles, would never have been occupied; and it is hard to believe that typhoid (probably contracted from old polluted wells in the neighborhood of the camps) would ever have become "widespread" at Tampa, Chickamauga, Fernandina, or elsewhere.

This is not a humanitarian question alone. For a civilian it is painful enough to know of the hundreds of lives ingloriously lost, after the fighting was done, and the health of thousands injured for the remainder of their lives, not by bullets, but by preventable diseases. History has shown that these diseases kill more of the troops than bullets. This is painful; but it strikes the average civilian as crass stupidity that the authorities in control should allow a command to be crippled, and its force as a fighting instrument weakened, by preventable causes. It is only fair to say that the present system of army sanitation was probably as good as could have been devised in the early periods of our army history, and perhaps represented the best sanitary system of those times. But the enormous advances made of late years in our knowledge of the causation of epidemic disease has led to the formation of separate departments in civic bodies for the distinct purpose of preventing disease, and the success in accomplishing this has amply justified this policy. It would seem now to be a question whether a progressive nation should not initiate civic bodies, and intrust to a corps of expert sanitarians, distinct from the hospital service and with ample power, the task of preserving the lives of its soldiers from the attacks of disease and the efficiency of its armies as fighting machines.

THE ACTION OF LYCETOL IN URIC ACID DIATHESIS.

Dr. Th. Hoven states (*Deutsch Med. Zeit.*) that he employed lycetol in the case of a gouty patient thirty-six years old, without any hereditary tendency, who since his twenty-fifth year had suffered from attacks of podagra and acute arthritis. The only etiological factor to be determined was the regular use of considerable quantities of beer. During the first years from the commencement of the affection the acute attacks occurred but rarely and affected only the articulation of the big toe on the left side. During the following years, however, the attacks constantly increased in number and involved other joints. Since 1892 he had suffered from two attacks yearly, in the Spring and Fall, which in 1897 increased to four attacks. The duration of the attacks varied from three to eight days. The treatment consisted of salycilate of sodium, piperazine, urotropine, poultices and other applications. Local and general baths were employed without success. Since August, 1897, and up to the beginning of 1898, the patient had refrained from the use of alcoholic drinks, but later drank moderately of beer. Towards the end of March the pains recurred in the joint of the left big toe, and at that time he came under Dr. Hoven's treatment. The treatment consisted of 1.0 Gm. lycetol with 1.5 Gm. magnesia usta, daily, followed by $\frac{1}{4}$ to $\frac{1}{2}$ liter of Roistorf mineral water. The diet was regulated according to the directions given by Dr. E. Pfeiffer, in the handbook on special therapy of internal diseases, edited by Penzoldt & Stintzing; complete abstinence from all alcoholic beverages, restriction of carbohydrates, abundance of albumen, fat and fresh fruit; free exercise in the open air, gymnastics, and twice weekly a warm full bath, followed by a cold douche.

Even after a few days from the commencement of the lycetol treatment, diuresis was considerably increased, and the stools which previously had been hard, although regular, became soft and occurred twice or three times daily.

On April 10 the diuresis had become so marked that the patient was prevented from following his occupation. The urine was light yellow, clear, feebly acid, and free from albumen and sugar. Lycetol was now discontinued until April 13. After recommencing the treatment, urination was considerably increased. The urine was always light, clear, feebly acid and never alkaline. Up to April 23 40.0 Gm. of lycetol had been administered. The swelling and tenderness in the left big toe joint had been markedly diminished. The treatment was resumed May 1, the patient taking 1.5 Gm. lycetol twice daily. The diuretic action of the remedy was again distinctly exhibited. The urine during the entire course of treatment was feebly acid and never became alkaline. May 10 the swelling of the joint had completely vanished and even forcible movement occasioned no pain. Under the above described diet, which, however, was not stringently enforced, the patient has remained free from any acute manifestation of gout up to the end of June.

In view of the previous history of this severe case, the appearance of an acute gouty attack could have certainly been expected in the spring. In view of the fact that it had failed to appear, and that the remains of the former gout had completely disappeared, the author considers himself warranted in attributing the successful result, aside from the diet, to the diuretic effect of lycetol, to the increased alkalinity of the blood and urine produced by the remedy, and the consequent greater capacity for dissolving uric acid. As lycetol is entirely free from any unpleasant or injurious after-effects, he highly recommends it for trial in cases of arthritis urica. Although, owing to the shortness of the period of observation, it is not permissible to speak of a cure, it appeared to him probable that by repeating the lycetol treatment for several years in succession in gouty cases, the painful acute attacks could be avoided, and under a moderate and healthy mode of life a complete cure of this troublesome affliction might be obtained in the course of time.

THE ASCARIS LUMBRICOIDES AS A CAUSE OF DEATH.

Vermeulen (*La Belg. Méd.*, June 23, 1898) reports the case of a child aged two and one-half years, who became ill with anorexia and *malaise*. Some days later three ascarides were passed after a vermifuge, and the temperature rose to 102.2° F. Again two worms were evacuated; the child was somnolent but did not vomit. Later three worms were expelled by the mouth. The pupils became widely dilated; the fever continued; there was constipation unaffected by calomel and santonin, though castor oil produced a stool containing more worms. The abdomen became tympanitic and tender, and the child died comatose. The author thinks there can be no doubt that the worms were the cause of this illness.

Recently Chauffard has described a typhoid form of lumbricosis, and Tauchon has collected three cases of it. P. Marie published a case in a man aged fifty-four, where it was impossible to exclude enteric fever with certainty, and Loi one in an infant aged six years, where all the symptoms of meningitis were present. In the later case the diagnosis was made by finding ova in the stools, tpyhoid fever being excluded by the serum test. All these cases recovered under teratment in spite of the gravity of the symptoms, but the author's case proves that death may follow even when the treatment is suitable and the diagnosis made early. Marie observes that in the case of worms quinine has no antipyretic action, while santonin has, even though its administration is not followed by the expulsion of the parasites, and considers this fact to be of importance in the differential diagnosis.

There are three theories as regards the etiology of the symptoms: (1) That the worms act mechanically by setting up pathological reflexes; (2) that they cause a true infection by raising the virulence of the intestinal micro-organisms through irritation of the mucous membrane and perhaps through their excreta (Chauffard); (3) that the ascarides themselves are virulent. Chansou and Tauchon proved this by crushing the worms and injecting the juice into guinea-pigs. Marie thinks that the two latter theories are alone worth considering, as it seems impossible that a few (in his case three) worms could produce such an illness by mechanical irritation.

THE TREATMENT OF GUNSHOT WOUNDS IN MILITARY PRACTICE.

Nicholas Senn (*Journal of the American Medical Association,* July 9) thus sums up a paper on the modern treatment of gunshot wounds in military practice: (1) In theory and practice military surgery is equivalent in every respect to emergency practice in civil life. (2) The wounded soldier is entitled to the same degree of immunity against infection as persons in civil life suffering from similar injuries. (3) The fate of the wounded rests in the hands of the one who applies the first dressing. (4) The first dressing should be as simple as possible, including an antiseptic powder composed of boric acid, four parts; salicylic acid, one part; a small compress of cotton, safety pins, and a piece of gauze 40 inches square. (5) Any attempt to disinfect a wound on the battlefield is impracticable. (6) The first dressing stations and the field hospitals are the legitimate places where the work of the hospital corps and company bearers is to be revised and supplemented.

All formal operations must be performed in the field hospitals, where the wounded can receive the full benefits of aseptic and antiseptic precautions. (7) Probing for bullets on the battlefield must be absolutely prohibited. (8) Elastic constriction for the arrest of hæmorrhage must not be continued for more than four to six hours for fear of causing gangrene. (9) The *x* rays will prove a more valuable diagnostic resource than the probe in locating bullets lodged in the body. (10) Gunshot wounds of the extremities must be treated upon the most conservative plan, the indications for primary amputation being limited to cases in which injury of the soft parts, vessels and nerves suspends or seriously threatens the nutrition of the limb below the seat of injury. (11) Operative intereference is indicated in all penetrating gunshot wounds of the skull. (12) Gunshot wounds of the chest should be treated by hermetically sealing the wounds under the strictest aseptic precautions. (13) Laparotomy in penetrating gunshot wounds of the abdomen is indicated in all cases where life is threatened by hæmorrhage of visceral wounds, and the general condition of the patient is such as to give ground for the expectation that he will survive the immediate effects of the operation.

THE HEART IN NORMAL PREGNANCY.

H. Vaquez and M. Millet (*Presse Med.*) hold that the frequently accepted view that pregnancy causes a cardiac hypertrophy is erroneous. In thirty-one cases examined by them the area of cardiac dulness was increased in seven instances, and in each of these a definite cause for the enlargement existed. They admit that modifications in the rhythm of the heart, and even temporary dilatations, may occur. In the diseased heart normal pregnancy undoubtedly aggravates existing conditions, but the authors do not believe that fatty degeneration and myocarditis account for the accidents occurring during pregnacy. In three cases which they studied there were exaggeration of the striation with swelling of the nuclei, or atrophy and disintegration of the cells, and also dilatation of the capillaries and even myocardial apoplexies, most marked in the right side of the heart, particularly in the right auricle. They believe that these are due to disturbance of the cardiac circulation rather than to myocarditis, and attribute them to the non-establishment of an equilibrium between the intracardial circulation and the pulmonary circulation, which is known to increase in activity during the latter months of pregnancy. The severity of the symptoms in cases of mitral stenosis is mentioned as serving to support this view. For the avoidance of cardiac troubles during pregnancy rest in bed and a milk diet are recommended, but some moderate exercise should be taken daily, and an absolute diet of milk is demanded only when signs of renal or hepatic congestion appear. If general symptoms of cardiac insufficiency supervene digitalis is indicated; but if the pulmonary circulation is especially disturbed, as in mitral stenosis, absolute rest in bed, milk diet, hot applications over the chest, and theobromine or Dover's powder internally give the best results. If severe symptoms are present after the sixth month and do not diminish after a month or six weeks of treatment, premature labor should be induced. Chloroform should be used in natural or induced labors in patients suffering from cardiac lesions. In cases of cardiac affections depending upon mitral stenosis digitalis acts unfavorably: and if the interference with the pulmonary circulation persists after labor, hypodermatic injections of morphine are most satisfactory. Marriage may be permitted if the cardiac lesion is simple and not causing symptoms, but should be strongly opposed if it has already caused attacks of cardiac insufficiency or if there is probably a marked mitral stenosis.

MARRIAGES BETWEEN COUSINS.

Dr. John Inglis (*Columbus Medical Journal*, August 16) says: 1. In the marriage of cousins-german the effect upon offspring will follow the law of heredity, the consanguinity *per se* being *nil*. 2. Given high physical, moral, and intellectual development, the effect of the union would be beneficial rather than otherwise. 3. Special talents, either for good or evil, may be developed by intermarriage. This was the case in the historic musical family, the Bachs, where the musical talent was developed to a high degree of excellence. 4. In an effort to compare one hundred cases of marriages between cousins-german with one hundred average marriages where no relation existed, he took by lot from a physician's case book, who had practised in a town of fifteen hundred inhabitants for thirty years and knew their family histories well, the names of one hundred families, and had this physician give him the record of these one hundred marriages with regard to sterility, pulmonary, mental, and congenital diseases. These were then compared with the marriages of cousins. The latter showed a lower percentage of sterile marriages and a slightly lower percentage of mental diseases. In pulmonary and congenital diseases there was about the same percentage of difference in favor of the former. In all other particulars the difference amounted to as little as any such comparisons can. In the one hundred cases of those not related, seventeen per cent. were sterile: in the cousins-german, fourteen and a half per cent. These figures agree very nearly with Huth's investigations. 5. The objection to cousins marrying, so far as there is an objection, is on the ground that very few families to-day are free from some tendency to weakness along some particular line; and it is equally true of these and of all marriages that heredity takes the line of least resistance. A marriage between two healthy cousins coming of a line free from any hereditary defect is perhaps as fair as the average marriage. 6. But only carefully selected cases of first cousins should marry, and in no case where any hereditary moral or physical defect exists. 7. The early objections to such marriages were on religious, not scientific, grounds. Notwithstanding this, it is a significant fact that the Mosaic law permitted them.

These conclusions are in keeping with the most recent investigations of this subject, such as those of the younger Darwin and Huth, of England, and Holbrook, of New York, in stirpiculture.

NAVY FULL-DIET TABLE.

After much study the medical officers of the navy have adopted a new full-diet table, in which every care has been taken to provide for a proper quantity of proximate principles in a variety of food suitable for a liberal diet, says the *Army and Navy Journal.* For each meal in the table running through a week the precise amounts of albuminoids, carbohydrates, and fats were arranged, bearing well in mind the preferences developed by a seaman's life. The bills of fare represent not only the ideal poor man's food, but food that cannot be surpassed by royalty as well. It is found in practice from the returns of all hospitals that these meals cost an average of thirty cents per day per person, or about ten cents per meal. The tables are thought to constitute the best possible fare, and represent a most excellent foundation for carrying other gastronomic luxuries. The naval full-diet table is as follows for one day in the week, the number after each article relating to ounces: Breakfast—coffee, 1; bread, 4; butter, 1; milk, 6; sugar, 1; oatmeal, 1; beefsteak, 6. Dinner—rice soup, 8; bread, 4; roast beef or roast or boiled fowl, 8; potatoes, 8; other vegetables, 6; pickles, 1; bread pudding with sauce, 6; or custard frozen, 8; fresh fruit, 6. Supper—tea, ¼; bread, 6; butter, 1; milk, 2; sugar, 1; cold roast mutton or cold roast beef, 4; stewed dried fruit or baked fresh fruit or apple sauce, 4. The staples—coffee, bread, butter, milk, sugar, and fresh and dried fruit, are the same for each meal, but there is a daily variety in meats and other articles for breakfast, dinner, and supper. The proportions are about the same, however, especially in the matter of meats, as in the specimen diet table given above. In addition to its use for convalescents, the table is now observed for all naval-hospital employes, and is gradually becoming the standard aboard ship and in the marine corps. Its adoption was the result of most patient and thorough investigation by Surgeon I. D. Gatewood, who consulted all the leading authorities on the subject.

THE USE AND ABUSE OF HYPNOTICS IN INSOMNIA.

According to the *Post-Graduate* (Vol. XIII, No. 5) the use of hypnotics in the treatment of insomnia is simply the use of symptom-remedies; insomnia is a symptom, not a cause of disease nor a disease. Sleep is essential to the welfare of the organism in the same sense that food is. Deprivation of one or the other causes death in about the same period of time.

The use of hypnotics, therefore, should be temporary while the underlying cause of the insomnia is being removed or palliated. Nor, indeed, is it well at the outset to employ hypnotics without trial of other measures. Aside from the removal of somatic causes for sleeplessness, various general methods may be employed. One of the best is a bath at 104° F. for five minutes. The general cutaneous vascular dilatation, increased by rubbing with a coarse towel, is frequently followed by a good night's rest. Warm, liquid food, as a glass of hot milk, a bowl of soup, will often give satisfactory results. In fact, some of the hypnotics which, on account of their insolubility, must be given in considerable quantities of hot liquids, owe not a little of their reputation to the vehicle in which they are administered. In debilitated individuals, a glass of stout or whisky in hot water (hot Scotch) may work wonders. In tired subjects strychnine sulphate in moderate dose acts as a hypnotic, not because it makes a too tired individual just tired enough to sleep, as a distinguished professor of medicine would have it, but because strychnine dilates the arterioles. Sometimes stimulation of the emunctories, as by sodium sulphate, again in hot water, taken at night will be followed by sleep, particularly in gouty subjects, not because it is hypnotic, but on account of its action on the liver, intestines, and kidneys. Methods which relieve pain—position, topical applications—are hypnotic.

Sleep is accompanied by cerebral anæmia any systematic cutaneous vascular dilatation. Any method which produces these effects will tend to the production of sleep. When these all fail, and after they do, hypnotics must be resorted to. The safest only should be chosen; they are chloralamide, pellatine, paraldehyde, and trional. The danger of hypnotics is immediate (death) or remote (interference with nutrition). The possibility of habit is always to be borne in mind. According to the article druggists are responsible for a large share of the abuse of hypnotics. Many openly prescribe hypnotics in doses far exceeding those considered safe, and, further, repeat prescriptions containing hypnotic drugs, even when the prescription directly forbids this. In England, sulphonal is sold as openly and carelessly as are the ordinary necessities of life. With equal ease coffee can be purchased for breakfast and sulphonal for bedtime. According to the writer the same is true in this country. The only remedy lies with the physician. Let him study his materia medica, learn his therapeutics, and apply intelligently what he has learned. Then, and only then, may he get the best results with the fewest disadvantageous symptoms, do the most for his patients, and, after all, rest with a consciousness of duty well performed.

THERAPEUTIC HINTS.

TANNOPIN.—Carl Fuchs (*Die Heilkunde*, August, 1898) reports seven cases from Drasche's clinic in which this drug was used. Tannopin is a condensation product of tannin (87 per cent.) and urotropin (13 per cent.), and was originally introduced by Nicolaier in the treatment of affections of the urinary organs. It is a brown powder, insoluble in most ordinary solvents, but splits up into its constituents by alkaline intestinal juice. Its antiseptic and astringent value in catarrh of the bladder having been proved, Schreiber, of Ebstein's clinic, tried it in 32 intestinal cases, including acute and chronic catarrh, tuberculous enteritis, and typhoid, giving doses of 7½ to 15 gr. three or four times a day with very good results, especially in the tuberculous patients. Fuchs's first case was one of tuberculous enteritis in a case of acute general tuberculosis; 60 gr. a day of tannopin were given for two days, with the result that the daily number of motions fell from twelve to one. The second case was one of acute diarrhœa, which was rapidly cured, as were also the third, fourth, and fifth, patients suffering respectively from morbus cordis which had been too vigorously treated with digitalin, phthisis, and chronic diarrhœa of uncertain origin. The sixth patient, whose diarrhœa came on in the course of Bright's disease, did not react quite so satisfactory; tannopin was given for some weeks, but the diarrhœa did not cease entirely, though the stools were reduced in number from five to two a day. The last case was one of cystitis, and in this the smarting during micturition diminished, the flow of urine increased, and the urine itself became clearer and less purulent. The frequency of micturition was not diminished, but the amount passed each time was increased. In this respect tannopin is undoubtedly inferior to urotropin, its action on the urinary passages being only symptomatic; this was the conclusion arrived at by Schreiber as well. As regards the intestines, it rapidly diminishes the watery stools in acute enteritis, but in chronic diarrhœa its action is less constant, being in some cases complete stoppage, in others only limitation in the number of the dejections.

TREATMENT OF MIGRAINE.—Frieser (*Münch. med. Woch.*, August 30, 1898) bases his observations on twenty-nine cases. He maintains that migraine is rarely a disease by itself, but is a symptom accompanying some other affection. Sometimes there is a hereditary predisposition, and the author gives details of three such cases. Migraine often complicates anæmia, and also, in the author's opinion, various diseases of the female generative organs. He gives details of a case in which the replacement of a retroflexed uterus was followed by a cessation of the attacks. The author has seen migraine in cases of ear disease, and details of a case are given in which after the removal of a nasal polypus there were no more attacks. One of the most frequent causes of migraine lies in dyspepsia due to chronic gastric catarrh, dilatation of the stomach, etc. Imperfect digestion of carbo-hydrates is sometimes found. Overwork in school children is an important etiological factor. Frieser mentions two cases in which injury to the head and a violent mental emotion respectively were followed by attacks of migraine. He thinks that the actual cause of the attack consists in the fermentative and other changes in the stomach contents. In the attack itself the author washes out the stomach; and if this cannot be done large quantities of warm water should be taken. He looks upon menthol as the best remedy. Constipation and dyspeptic symptoms must be carefully treated by diet and otherwise. Antipyrin, phenacetin, etc., cannot be relied upon. Frieser has obtained better results with benzacetin and trephinin, which he gives in doses of 0.5 g. Valerianate of menthol may be used in the intervals. He has known relapses occur even after the last attack.

THE MANAGEMENT OF SIMPLE SPASMODIC CROUP.—John H. Billings, M.D., (*Med. Record*) emphasizes the importance of examining the naso-pharynx in spasmodic croup in children, which he says can hardly be overestimated. He had under observation the past winter six cases of the ordinary spasmodic croup, coming on at night, yielding, however, to the ordinary simple remedies. On examination of the nasopharynx the following day, three cases presentd enlarged tonsils and nasopharyngeal adenoids, three the nasopharyngeal adenoids simply. These six cases were treated surgically—that is, the tonsils were excised and the adenoids removed; and, although this took place early in the winter, no attacks were experienced again in any of the six patients, these children being called "croupy" and suffering since birth from frequent attacks during cold weather. In all cases of this character it seems that an examination of the fauces might lead to the exciting cause, in the great majority the obstruction to proper nasal breathing rendering the child catarrhal and croupy, and predisposed to attacks of this nature. He also calls attention to the importance of keeping the room quiet and the child's attendants calm and collected, the exhibition of excitement and fear on their part causing the little patients to struggle and the attacks of stridor to be greatly intensified. He has often been able to carry the croupy child through the night without the least difficulty, by simply having the room quiet and the attendants cheerful, carefully avoiding any expression of fear in words or manner.

TREATMENT OF INFANTILE ECZEMA.—Dr. Comby (*La Méd. mod.*, No. 4, 1898) says that in all cases of eczema in children the gastro-intestinal functions must be attended to. For this purpose he gives very small doses of calomel and the following combination:

R. Sod. bicarb.
Calc. magnesia.
Benzo-naphtol............................aa 2½ to 5 grn.
Powd. nux vomica........ .... $\frac{1}{12}$ to $\frac{1}{6}$ grn.

Mf. pulv., No. 1. Tal. dos. No. X. S.: A powder once a day for 10 days; then discontinue for 10 days and commence again.

To this prescription may be added some rhubarb, pepsin, or pancreatin; in case diarrhœa is present, the calcined magnesia is replaced by salicylate of bismuth. If the child is anæmic, some ferrous oxalate, 0.02-005 ($\frac{1}{3}$-$\frac{5}{6}$ grn.) daily is administered.

As to the local treatment, the author advises to give the child one sublimate bath (1:10000) and then to stop bathing altogether. In severe itching, compresses with cod-liver oil or carron-oil are useful. Picric acid (1:100) is also to be tried. As applications the author recommends a 10 per cent. zinc or bismuth ointment, or, in extensive eczemas, the following powder:

R.	Menthol	8 grn.
	Salicylic acid	15 grn.
	Starch	
	Talcum	
	Lycopodium	aa 5 dr.

R.

Chelidonium Majus in Inoperable Carcinoma.—C. C. Hunt (*Jour. of Am. Med. Assn.*, Vol. XXX, No. 23) concludes: 1. Chelidonium majus, injected interstitially into the substance of a carcinomatous growth, tends to its obliteration by necrobiosis. 2. Copious and frequent interstitial injections of the fluid extract are unattended with danger to the patient, if judiciously used. 3. In cancer of the rectum, even at an advanced stage, stenosis may be prevented and the necessity of palliative colotomy obviated. 4. It is a deodorizer of no mean power. 5. There is some warrant for the belief that it has a favorable influence over glandular infiltration and tends to prevent metastasis. 6. It is a hemostatic and antiseptic. 7. It gives the patient hope of ultimate recovery and this tends to mitigate or annul the awful apprehensions of impending dissolution, apprehensions, we may well opine, more appalling than death itself.

Cerebro-Spinal Fever.—In a lecture on the above, Osler (*Mary. Med. Jour.*, Vol. XXXIX, No. 14, p. 717) draws attention to two points of very great moment in the diagnosis of the disease: Quincke's lumbar puncture, which enables one to make a comparatively early diagnosis, and the determination of the Diplococcus intracellularis as the probable cause of the disease. The spinal puncture as recommended by Quincke is a perfectly harmless procedure, though it sometimes requires a little skill to get into the canal. Not only does it do no harm, but in some cases it seems to be beneficial in relieving the pressure. If a dry tap be the result it does not mean that meningitis is not present, for the exudate in the meninges may be of such a buttery consistence that it cannot flow The determination of the presence of the diplococcus in the fluid obtained by lumbar puncture makes the diagnosis positive. The prognosis in cerebro-spinal fever is by no means hopeless in a large proportion of cases, though that in other forms of meningitis, due to the bacillus of tuberculosis, or the streptococcus, or the pneumococcus, is very fatal.

TREATMENT OF TUBERCULOSIS OF THE THROAT.—In the treatment of tuberculosis of the throat, H. M. Thomas (*Jour. of Am. Med. Assn.*, Vol. XXX, No. 22) advises to combine constitutional with local measures. The treatment of the local lesions varies with their character, position, extent, accessibility, topical application, and influence on deglutition and respiration. Circumscribed thickenings with a non-broken surface may be treated with creosoted iodine in glycerine or menthol in solution of olive-oil. An ulcerated larynx can be relieved with an insufflation of iodoform in solution with sulphuric ether. Laryngeal secretion should be removed by direct application of alkaline sprays. When tuberculous ulcers are on the surface, lactic acid well rubbed in, with a 20 to 40 per cent. strength isc valuable. When the resultant eschar falls, repeat the process until cicatrization is established. Where the mucous membrane is not broken, lactic acid, the writer believes, is negative, while 20 per cent. solutions of menthol in olive-oil injected into the larynx are efficacious. Cough due to ulceration, may be mitigated by insufflation of morphine in one-sixteenth to one-half grain strength. Submucous injections, 3 per cent. of cocaine hydrochlorate for pain; orthoform is a valuable analgestic. Painful deglutition can sometimes be relieved by having the patient lie on his stomach, with head and arms over the bed, the feet being higher than the body. In this position water and nourishment can be siphoned through a tube reaching from a receptacle held below the mouth. Much temporary relief can be afforded by the inhalation of vaporized antiseptic oils, which, being carried directly to the abraded surfaces are deposited well over them, and through absorption and mechanical protection greatly allay many of the distressing symptoms attendant upon laryngeal tuberculosis.

BOOK REVIEWS.

An American Text-book of the Diseases of Children, including Special Chapters on Essential Surgical Subjects; Orthopædics; Diseases of the Eye, Ear, Nose and Throat; Diseases of the Skin; and on the Diet, Hygiene and General Treatment of Children. By American Teachers. Edited by Louis Starr, M.D., Consulting Pædiatrist to the Maternity Hospital, Philadelphia; Late Clinical Professor of Diseases of Children in the Hospital of the University of Pennsylvania, etc., etc,, etc., assisted by Thompson S. Westscott, M.D., Instructor in Diseases of Children, University of Pennsylvania; Visiting Physician to the Methodist, Episcopal Hospital, etc., etc. Illustrated, Second edition, revised. Philadelphia: W. B. Saunders. 1898. Pp. xvi–1244. Clo., $7, net.

The literature of pædiatrics has grown with such rapidity within the last two decades that the most serious problem which confronts the editor of such a volume as that before us is, not the securing of sufficient matter to fill out the volume, but rather to determine what in the vast mass of matter at the disposal of the author can, with the least loss, be omitted. The task has, in this work, been most acceptably performed both by the individual contributors and by the editors.

For the information of such of our readers as may not be familiar with the work through its earlier edition we present herewith a list of the contributors, which will, of itself, be in some sort an index of the value of the volume:

David Bovaird, Dillon Brown, Henry Dwight Chapin, Floyd M. Crandall, Andrew F. Currier, John Dorning, J. Henry Fruitnight, Henry Koplik, Geo. Roe Lockwood, Wm. Perry Northrup, Frederick Peterson, J. Lewis Smith, Wm. T. Plant and M. Allen Starr, of New York; John Ashurst, Charles W. Burr, Roland G. Curtin, J. M. DaCosta, Edward P. Davis, John B. Deaver, George E. DeSchweinitz, J. P. Crozer Griffith, Barton Cooke Hirst, J. Hendry Lloyd, Chas. K. Mills, John H. Musser, Thomas R. Neilson, Frederick R. Packard, Wm. Pepper, B. Alexander Randall, Edward O. Shakespear, Louis Starr, James Tyson, Thompson S. Westcott, Henry R. Wharton, J. William White and James C. Wilson, of Philadelphia; Wm. E. Casselberry, W. S. Christopher, Archibald Church, I. N. Danforth, Chas. Warrington Earle, Marcus P. Hatfield and Henry M. Lyman, of Chicago; Wm. A. Hardaway, of St. Louis; Edward M. Buckingham, Henry Jackson, F. Gordon Morill, Frederick C. Shattuck and Chas. W. Townsend, of Boston; Thomas S. Latimer, Francis T. Miles, Wm. Osler and W. S. Thayer, of Baltimore; Samuel S. Adams, of Washington; Frederick Forcheimer, H. Illoway and B. K. Rachford, of Ohio; Chas. G. Jennings and Victor C. Vaughn, of Michigan; Albert R. Leeds and Wm. M. Powell, of New

Jersey; James E. Moore, of Minnesota; A. D. Blackader, of Canada, and Wm. A. Edwards, of California.

Where there are so many contributors to a volume there is, of course, danger of a lack of co-ordination in the various chapters, resulting in a neglect of some portion of the field and a duplication of the work in others. The delicate task of so adjusting the work of the several contributors as to avoid either of these faults has been performed in a most satisfactory manner in the volume under review, though the individuality of style of the several contributors has not been in any wise interfered with. The work is on the whole creditable alike to the contributors, the editors and the publisher.

A COMPEND OF DISEASES OF THE SKIN. By Jay F. Schamberg, A.B., M.D., Associate in Skin Diseases, Philadelphia Polyclinic, etc., etc. With 99 illustrations. Philadelphia: P. Blakiston's Son & Co., 1012 Walnut Street. 1898. Clo., 80c., net.

The series of compends to which the little volume under review belongs has proven very popular and when properly used are no doubt of value to the student, and even a means of ready reference to medical practitioners. There is unfortunately a tendency to substitute compends of this character for the more complete legitimate text-book, a tendency which is to be much deprecated. The volume before us is well suited to its legitimate uses, and should prove of value within the limitations which its form prescribes.

A CLINICAL TEXT-BOOK OF DIAGNOSIS for Physicians and Students. Based on the most recent methods of examination. By Oswald Vierordt, M.D., Professor of Medicine at the University of Heidelberg, etc., etc. Authorized translation with additions by Francis H. Stuart, A.M., M.D., Obstetrician to the Brooklyn Hospital, etc., etc. Fourth American edition, from the fifth German. Revised and enlarged with one hundred and ninety-four illustrations. Philadelphia: W. B. Saunders. 1898. $4.00, net.

Probably no branch of medicine is so difficult to learn, and certainly none is so difficult to teach as is diagnosis. The ease, rapidity and certainty with which a good diagnostician will arrive at a correct conclusion is so bewildering to the lay mind as to almost invest the physician with a certain degree of awe in the minds of the general public. The capacity for accurate observation and logical deductions from these observations necessarily varies widely in the individual, a fact which becomes very noticeable in the class room and which no amount of training can wholly overcome. In fact the training seems rather to accentuate the difference in capacity of different students rather than to equalize it.

In view of the importance of this particular field of work it is not at all surprising to note that five editions have been issued of this volume in Germany within less than nine years, while the current edition in English is the fourth American taken from the fifth German edition. The translation is well done and the work will prove a valuable addition to the library of either the student or the medical practitioner. The publishers are to be congratulated upon the mechanical make up of the book which is excellent in every respect.

FAVORITE PRESCRIPTIONS.

Application for Chilblains.

Dr. Boeck recommends painting the part with the following (Le Scalpel):

Ichthyol Resorcin Tannicæ	aa grn. xv
Aquæ	grn. lxxv

In Acute Gonorrhœa.

Dr. Duquain has used the following injection with good results (Cent. f. d. Ges. Therapie, p. 443, 1898):

Methyl salicylate, artificial	mxv
Bism. subnit., or better salicylate	ʒijss
Liquid vaseline	℥iijss

S. Shake well before each injection.

Liebreich's Mixture eor Gastro-intestinal Catarrh.

The following formula is from the Semaine médicale:

Tincture of calumba Tincture of cascarilla	equal parts.

Twenty drops to be taken four or five times a day in cases in which it is not advisable to use opium.

Erb's Tonic Pills.

The Gazette hebdomadaire de médecine et de chirurgie cites the following formula:

Iron lactate	from 45 to 75 grains.
Aqueous extract of cinchona	75 "
Alcoholic extract of nux vomica	from 6 to 9 "
Extract of gentian	a sufficiency.

M. Divide into a hundred pills. One or two to be taken three times a day, after meals.

These pills are used in the treatment of tabes, after a mercurial course. Erb thinks that they not only ameliorate the patient's general condition, but even exert an influence on his psychical state.

The Administration of God-liver Oil.

The Gazette hebdomadaire de médecine et de chirurgie gives the following as Bricemoret's formula:

Cod-liver oil	6,000 grains.
Syrup of balsam of Tolu	3,000 "
Tincture of balsam of Tolu	12 drops.
Essence of cloves	2 "

The mixture is not to be emulsionized, but simply shaken vigorously before the dose, a tablespoonful, is poured out. After it is taken, the only taste that remains in the mouth is that of the syrup.

GAILLARD'S MEDICAL JOURNAL.

A MONTHLY JOURNAL OF MEDICINE AND SURGERY

Scientia et Veritas Sine Timore.

Published by the New York Medical Publishing Co.,
106 William Street, NEW YORK.

All communications, of either business or editorial character, should be addressed to Gaillard's Medical Journal, 106 William St., New York.

Articles for publication will be received with the understanding that they are contributed exclusively to this journal. Reprints will be furnished at actual cost, orders for which should accompany the manuscript. Authors of accepted articles may receive twelve copies of the issue in which they are published. Necessary illustrations will be furnished without expense to authors when suitable drawings or photographs are furnished.

YELLOW FEVER AND THE QUARANTINE QUESTION.

THE rapid spread of yellow fever through the State of Mississippi during the past month furnishes a very strong argument in favor of the organization of a well equipped national board of health which has ample power to protect the citizens from the moral terror as well as pecuniary loss entailed by yellow fever epidemics. There can be no question but that the proper authority to handle this subject should be vested in the marine hospital service which, with a few modifications of the existing regulations and with a considerable enlargement of its power, would be in a position to render the greatest possible service in protecting the country against yellow fever. The remarks printed on another page concerning yellow fever in Jamaica are of great interest as showing the inefficacy of ordinary sanitary precautions where the fever has once established a foothold. The medical and lay press of the North frequently incline to attribute all the terrors of yellow fever to the unsanitary conditions existing in the South. As is pointed out by Dr. Anderson, of Jamaica, in a book referred to by Dr. Cargill, this fever "may occur in the most healthy country localities with perfect sanitary surroundings and be absent in city slums, where from filth, over-crowding and malaria it might be expected to exist." The loss entailed by commerce through one season of yellow fever epidemic is so large that it would furnish an amount vastly in excess of what would be necessary to maintain an effective quarantine service under the supervision of the marine hospital bureau. The close commercial relations which will undoubtedly be established between Cuba and Porto Rico and the United States will give still further grounds for urging upon Congress the necessity of devising some adequate means of handling the question of quarantine.

THE USE AND ABUSE OF THE OBSTETRICAL FORCEPS.

WHEN the use of forceps was first introduced into obstetrics the innovation was hailed on the one hand as the beginning of the obstetrical millennium, while on the other it was condemned as a positive profanation and menace to the welfare of the human race. This, however, is the common lot of all innovations in medicine, and here, as heretofore, neither extreme view has been justified by the results of experience. The use of the forceps has steadily grown in popularity, and with this growth have come marked improvements both in the form of the instruments and in the technique of their application. Side by side with this improvement, however, has come that familiarity which breeds undue confidence, and the consequence has been that an indiscriminate use of these undoubtedly valuable instruments has been followed by ill results which tend to cast discredit on any use of the forceps at all.

These abuses were made the subject of an address at the meeting of the British Medical Association held last year in Montreal by Prof. W. Japp Sinclair, who pointed out the manifold dangers resulting from the use of the forceps, and protested against the growing frequency with which they were resorted to. A reply to this paper was presented at this year's meeting of the Association by Professor Milne Murray, in which the advantages of the use and the danger from the abuse of the forceps are well and clearly set forth. We commend the attention of our readers to this paper, which was presented in our last issue. While the subject is treated in an admirable manner it is easier to give assent to the general tone of the paper than to some of its specific teachings. The author, for instance, lays down the dictum that the forceps should be applied only when the danger from delay is greater than the danger from the use of forceps. This dictum while acceptable in a general way should not be accepted as implying that instrumental aid is to be given only when there are symptoms of danger to mother or child, or both. The best construction to put upon it is that aid should be given when it is possible to do so without deranging the mechanism so as to avert symptoms of danger. In ordinary cases for instance it is fairly safe to resort to the use of forceps whenever the head is well under the brim, well rotated and the os dilated. Here, too, it is essential to guard against intermittent dilation of the os. Cases occur from time to time where the dilation is intermittent and if the forceps be applied during a period of dilation and traction resorted to after contraction has set in the results are disastrous. In cases of grave and immediate danger to either mother or child the three conditions laid down above must sometimes be disregarded.

When used, the forceps should be applied with reference to the diameter of the child's head. If the head is low down in the pelvis, it is always possible to grasp the head transversely. If the head is high up it is more difficult; with care, however, even in these cases the head can be grasped nearly transversely, and the more nearly transversely it is grasped the better. With the best forms of forceps, however, little harm results from a disregard of this.

There is no point in obstetrical practice where the individual judgment of the practitioner is so severely tested as in the question of when the forceps should be resorted to in any particular case, and there is no subject in which experience under proper guidance and instruction is so essential. Finally the practitioner should be warned that he is never justified in resorting to the forceps merely to save his own time. The condition of mother and child and not his own convenience must determine this point.

MOSQUITOES AND MALARIA.

WHILE the part played by flies in the mechanical transportation of communicable diseases has long been known, the practical application of this knowledge has made but little progress. This is shown in the reports made to the investigataing committee which is now taking testimony concerning the conduct of the war. Abundant evidence has been brought before the committee that the sinks in which typhoid stools were emptied were frequently located within fifty feet or less of the camp kitchens, and that many of the camps were overrun with a plague of flies. The relataionship between these two facts and the rapid spread of typhoid among the troops in camp at Chickamauga and Camp Alger, is so patent that it is a matter rather of surprise that it did not occur to the surgeons in charge of the camps, and that no adequate efforts were made to guard against the spread of the contagion from this source. This neglect accentuates very strongly the necessity which was pointed out in our last issue for the establishment of a sanitary corps in the medical bureau, which should constitute, practically, a military board of health.

The results of the studies of Professor Manson and of Major Ross on the relationship of mosquitoes to malaria, published in this issue, offer a most fascinating field for speculation. For the practical applicataion of the results of Dr. Manson's studies, we see but little immediate prospect. A further study of the conditions under which the malarial parasite is conveyed to the human subject by means of the mosquito will, however, no doubt, furnish information which may be put to a practical use.

THE use of Latin in prescriptions is gradually dying out in the United States and while its retention is still advocated by some, there are many independent thinkers who openly contend for its complete disuse.

The *Philadelphia Medical Journal* says: "We think it time that Latin should not be used any longer in writing prescriptions. There is not one in a hundred physicians who can write Latin correctly, and a prescription that is one-half or one-fourth in Latin and the rest in English is bastardly ridiculous. We all hide our philologic ignorance under contractions that lead to ambiguity and even danger, and when we can no longer hold out with our wretched sham we are compelled to plunge into English for the directions. All arguments for this mediæval nonsense do not amount to a pinch of snuff. As for hiding the knowledge of the drug from the patient, and the advantage to patients traveling abroad, the facts need only to be looked squarely in the face, and the argument for Latin becomes a bad boomerang. The practice is a pompous bit of humbug which should be left to mediævalists and not scientists. So soon as we get our therapeutics out into the daylight of common sense and genuine science we shall surely dispense with the sorry jumble of bad Latin and poor English illustrated by nine-tenths of the actual prescriptions on file to-day at the drug-stores.

THE profound and exhaustive studies of the etiology of gout and of the gouty diathesis which furnished the basis for the Goulstonian lectures delivered last year by Dr. Arthur P. Luff, demonstrated the error of hypotheses which had heretofore been generally accepted in relation to the causation of this class of diseases. He seems to have clearly established the error of the theory held by many students of the subject that there is some constant relationship between the alkalinity of the blood and the outbreak of attacks of gout. Luff draws the conclusion that the alkalinity of the blood of gout is not necessarily diminished during an attack, and furthermore that no constant relationship exists between the alkalinity of the blood and the acidity of the urine during an attack. The subject is one fraught with great practical interest, for the treatment of gout is still carried on almost wholly on an empirical basis.

GAILLARD'S MEDICAL JOURNAL.

VOL. LXIX. NEW YORK, DECEMBER, 1898. No. 6.

THE HUXLEY LECTURE ON RECENT ADVANCES IN SCIENCE AND THEIR BEARING ON MEDICINE AND SURGERY.

Delivered at the opening of the Charing Cross Hospital Medical School on October 3rd,

By Professor Dr. RUDOLF VIRCHOW, University of Berlin.

The honor of being invited to deliver the second Huxley Lecture has deeply moved me. How beautiful are these days of remembrance which have become a national custom of the English people, and through which the memory of intellectual heroes is kept alive to posterity! How touching is this act of gratitude when the celebration is held at the very place wherein the genius of the man whom it commemorates was first guided towards its scientific development! We are filled not alone with admiration for the hero, but at the same time with grateful recognition of the institution which planted the seed of high achievement in the soul of the youthful student.

That you, gentlemen, should have entrusted to a stranger the task of giving these feelings expression seemed to me an act of such kindly sentiment implying such perfect confidence that I at first hesitated to accept it. How am I to find in a strange tongue words which shall perfectly express my feelings? How shall I in the presence of a circle of men who are personally unknown to me, but of whom many knew him who has passed away, and had seen him at work, always find the right expression for that which I wish to say as well as a member of that circle itself could? I dare not believe that I shall throughout succeed in this

But if in spite of all I repress my scruples it is because I know how indulgently my English colleagues will judge my often incomplete statements, and how fully they are inclined to pardon deficiency in diction, if they are convinced of the good intentions of the lecturer. I may assume that such a task would not have been allotted to me had not those who imposed it known how deeply the feeling of admiration for Huxley is rooted within me, had they not seen how fully I recognized the achievements of the dead master from his first epoch-making publications, and how greatly I prized the personal friendship which he extended towards me. In truth, the lessons that I received from him in his laboratory—a very modest one according to present conditions—and the introduction to his work which I owe to him, form one of the pleasantest and most lasting recollections of my visit to Kensington

The most competent witness of Huxley's earliest period of development, Professor Foster, presented in the first of these lectures a picture of the rapidly increasing extension of the biological knowledge, which must have excited not only our admiration but also the emulation of all who study medicine. Upon me the duty is incumbent of incorporating with this presentment the newer strides of knowledge, and of stating their influence upon the art of healing. So great a task is this that it would be presumptuous even to dare to attempt its accomplishment in a single lecture. I have decided, therefore, that I must confine myself to merely sketching the influence of biological discoveries upon medicine. In this way also will the example of Huxley be most intelligible to us.

The Beginning of Biology.

Huxley himself, though trained in the practical school of Charing Cross Hospital, won his special title to fame in the domain of biology. As a matter of fact at that time even the name of biology had not come into general use. It was only recently, as I showed in my lecture "On the Position of Pathology amongst Biological Studies,[1]" that the idea of life itself obtained its full significance. Even in the late middle ages it had not sufficient strength to struggle through the veil of dogmatism into the light. I am glad to be able to-day, for the second time, to credit the English nation with the service of having made the first attempts to define the nature and character of life. It was, as I then pointed out, Francis Glisson, who, following expressly in the footsteps of Paracelsus, investigated the principium vitæ. If he could not elucidate the nature of life he at least recognized its main characteristic. This is what he was the first to describe as "irritability," the property on which the energy of living matter depends. He thus succeeded in setting aside the mystical idea of the spiritualistic Archæus which Paracelsus and his followers had placed in the forefront of their deliberations, and in locating the principium energeticum in matter itself.

How great was the step from Paracelsus to Glisson and—we may continue—from Glisson to Hunter! According to Paracelsus, life was the work of a special spiritus which set material substance in action, like a machine; for Glisson matter itself was the principium energeticum. Unfortunately, he did not confine this dictum to living substances only, but applied it to substance in general, to all matter. It was Hunter who first announced the specific nature of living matter as contrasted with non-living. But he also did not attain perfect clearness of vision, because in the development of English medicine the idea had been allowed to take root and grow, that life was not bound up with structure, so that Hunter also was led to place a materia vitæ diffusa at the head of his physiological and pathological views. Hence he arrived at the assumption of the so-called plastic substances in respect of which the blood served both as rallying-point and seat of formation, and so it happened that in place of the old Greek humoral pathology which Paracelsus had overthrown, a new humoral pathology arose—hæmatology. According to the teaching of Hewson and Hunter, the blood supplied the plastic materials of physiology as well as the plastic exudates of pathology.

Huxley's Early Training.

Such was the basis of the new biological method, if one can apply such an expression to a still incomplete doctrine, in 1842 when Huxley was beginning his medical studies at Charing Cross Hospital. Of pathology in England, John Hunter was the accepted master, and so remained for many years thereafter. So great was his influence that Continental medicine also recognized it. To this I can myself testify, as I was at this time at the end of my university studies. It would lead too far afield were I to recount in this place how it happened that I myself, like Huxley, was early weaned from the pernicious doctrines of humoral pathology; it must suffice to say that salvation lay in the same science which had already once before, in the sixteenth century, brought about deliverance from humoral pathology. It then came about that Vesalius threw over the authority of Galen and founded human anatomy upon direct observation, on necropsy. Since then anatomical studies have been much widened and improved. When Huxley himself left Charing Cross Hospital, in 1846, he had enjoyed a rich measure of instruction in anatomy and physiology. How great this was can be gathered from the interesting statistics which Professor Foster has collected with the aid of Huxley's distinguised fellow student, Sir Joseph Fayrer. Of the lectures which junior students attended, one hundred and forty in each of the three years of study were devoted to anatomy and physiology. Thus trained, Huxley took the post of naval surgeon, and by the time that he returned, four years later, had become a perfect zoologist and a keen-sighted ethnologist. How this was possible anyone will readily understand who knows from his own experience how great the value of personal observation is for the development of independent and unprejudiced thought. For a young man who, besides collecting a rich treasure of positive knowledge, has practised dissection and the exercise of a critical judgment, a long sea-voyage and a peaceful sojourn among entirely new surroundings afford an invaluable opportunity for original work and deep reflection. Freed from the formalism of the schools, thrown upon the use of his own intellect, compelled to test each single object as regards properties and history, he soon forgets the dogmas of the prevailing system and becomes first a sceptic and then an investigator. This change which did not fail to effect Huxley, and through which arose that Huxley whom we commemorate to-day, is no unknown occurrence to one who is acquainted with the history not only of knowledge but also of individual scholars. We need only point to John Hunter and Darwin as closely allied examples.

The path on which these men have achieved their triumphs is that which biology in general has trodden with ever-widening strides since the end of last century; it is the path of genetic investigation. We Germans point with pride to our countryman who opened up this road with full conviction of its importance, and who directed towards it the eyes of the world—our poet-prince Goethe. What he accomplished in particular for plants others of our fellow-countrymen achieved for animals. I recall Caspar Friedrich Wolf, Döllinger, Joh. Friedrich Meckel, Carl von Baer, and our whole embryological school. As

Harvey, Haller, and Hunter had once done, so these men began also with the study of the "ovulum," but this very soon showed that the egg was itself organized, and that from it arose the whole series of organic developments. When Huxley after his return came to publish his fundamental observations, he found the history of the progressive transformations of the contents of the egg already verified, for it was by now known that the egg was a cell, and that from it fresh cells, and from them organs, arose. The second of his three famous papers, that on the relationship between man and the animals next beneath him, limned in exemplary fashion the parallelism in the earliest development of all animal beings. But beyond this it stepped boldly across the border-line which tradition and dogma had drawn between man and beast. Huxley had no hesitation in filling the gap which Darwin had left in his argument, and in explaining "that in respect of substance and structure man and the lower animals are one."

Whatever opinion one may hold as to the origin of mankind, the conviction as to the fundamental correspondence of human organization with that of animals is at present universally accepted. All biological science, especially physiology and pathology, creates hence the impulse to corresponding studies, and in particular all that has to be based on experiment must in the first instance be investigated in animals, while all that requires morphological confirmation finds support in comparative anatomy, histology, and embryology. The basis of our comprehension of the theory of medicine actually rests nowadays on minute microscopy, for the elaboration of which the animal tissues form an indispensable control object. Suffice it to say that in scientific biology the division between man and beast becomes less and less defined, but only let it be remarked the division between the abstract man and the abstract animal. It is the same relation as meets us in the differentiation between plants and animals. How many definitions of this have been put forth in the course of time, and how one after the other has been wrecked? But if we place a given animal and a given plant side by side we overcome the difficulties which we had only raised by our own definition.

The Nature of the Vital Processes.

The greatest difficulty in biology has arisen in this way—that mankind, following a natural tendency, has set the search after the unitary basis of life in the foreground of its consideration. As a matter of fact, what is more natural than the conclusion that life as a special phenomenon must also have a special basis, and that the material process of life must be derived from a common cause? During the last century an attempt was made to satisfy this claim by the assumption, with ever-increasing conviction, of a special force—vital force. Nowadays we can still perceive the logical errors which this assumption rendered possible. Time has, however, passed judgment upon it, and to-day no one continues to speak of vital force. And yet the necessity for a single basis of all vital manifestations remains. How is this to be satisfied? This is a question which is not alone of great theoretical interest, but which has become an indispensable foundation for practical work, and particularly for medical practice. But in order to reach this foundation, it is first of all necessary to dispense with all the dogmas of the schools, and to seek to construct an objective picture of the nature of vital processes.

As regards material construction, man, and the higher animals and plants, are no unitary, simple beings; on the contrary, they are put together from many units. They are hence called organisms. If they possessed but one single power which set all their parts in action, it would be impossible to understand how the special kind of activity which each one of these organisms exercises in its individual way comes about. This specific activity is present in the organism not alone in its perfect or fully-grown form, but also during its development and growth. How can a single power, whether we call it in the spiritualistic sense spirit, soul, spiritus rector, or, in the physical sense, vital force or electricity, build up such diverse organisms? Or if this power resided in a single organ—were it in brain, or spinal cord, or heart—how could those brainless and heartless creatures be explained which present so abnormal a condition that at the beginning of this century they were the proper battle-ground of the mystics?

There is here, in my opinion, only one solution possible. The life possessed by the higher organisms is not a single one. Their life and all their activities only become intelligible when we go back to the exact representation, based upon a kind of instinctive observation, of the life of their parts. Each constituent part of a living organism has its special life, its vita propria. No one of the older authors proclaimed this more distinctly than Paracelsus. But he at once undid this good idea again by attributing to each living part a particular spiritus, a special Archæus. The best of the succeeding biologists were also held by this notion as in a snare; instead of busying themselves in the observation of vita propria—that is, the action of the parts, they continued to devote themselves to research on the Archæus.

The advances in general science based upon personal observation, and particularly those in medicine, have completely turned the attention of true observers to the study of individual parts. As I pointed out at the Medical Congress at Rome,[2] it stands most clearly revealed in the history of pathology that the division of the body first into larger regions (head, breast, abdomen, etc.), then into organs, then into tissues, and finally into cells and cell territories, was the first step which opened up to us the comprehension of disease. The study of regions was followed by that of organs, and this again by that of the tissues, and finally by the cellular theory. But what is true of pathology must hold also for physiology, and as a matter of fact physiology has passed through the same developmental phases. One gradually comes to understand that the life of the individual parts is perfectly clear if one looks away from the Archæi of the organs or tissues, and keeps in view only the life and activities of the single cells. For the life of an organ is naught else than the sum of the lives of the single cells which are gathered together into it and the life of the whole organism is not an individual but a collective function.

If such a collective being is analyzed, no matter whether it be the whole organism, or a single organ, or only one tissue which is presented in its vital activity, the first requisite for a correct interpretation is that one should discard the fabled unity, and should regard the single parts, the cells, as the factors of existence. Single cells can be separated out even in a complex organism, but we should with difficulty arrive at a satisfactory theory if we did not also meet with single free-living cells in Nature. These have provided the first basis for objective investigation. Unicellular plants and animals have during this century been continually more fully and better studied. Botanists and zoologists have become the teachers of physiologists and pathologists. The ova of animals and the corresponding germ cells of plants have bridged the gap between isolated living cells and higher organisms. It was the recognition of this fact which first raised the famous theorem of Harvey to the high position which it merits.

The Organism Not an Individual but a Social Mechanism.

In a medical school, where the teaching is almost entirely concerned with human beings, we might put this sentence at the head of the lesson: "The organism is not an individual but a social mechanism." An exact anatomical analysis of this mechanism always brings us at last to cells; they are the ultimate constituents of all tissues as they were their origins. Hence we call them the living elements, and hence we regard them as the anatomical basis of all biological analysis, whether it has a physiological or a pathological object in view.

In relation to this two propositions must be stated: (1) That every organism, like every organ and tissue, provided it is alive, contains cells; (2) that the cells are composed of organic chemical substances, which are not themselves alive, but the mechanical arrangement of which determines the direction and power of their activity.

The first proposition has of late slowly come to be realized. Schwann, who recognized the origin of tissues from cells, still clung to the opinion that in the further development of many tissues the cells were used up. Among these he reckoned that important group which has subsequently become known as the supporting tissues, because it ensures form and stability to single organs, and to the whole organism. First among these stand the osseous and connective tissues, which also form so large a fraction in the quantitative constitution of higher organisms. The conception of the osseous and connective tissues as free from cells must now be given up. Where formerly only empty spaces or mere leaks (lacunæ. holes) were seen in the tissue we now can demonstrate actual cells. We can even isolate them. Hence it is now desirable that the name "tissue," in the sense of living tissue, should be applied only to such parts as contain living cells. Outside the cells the tissue may contain a more or less rich share of organic (chemical) material, but this intercellular or extracellular substance must be regarded as an additional endowment, and not as a vital factor. Such parts as arose originally from living cells, but of which the cells have perished, must be excluded from biological consideration. As examples may be adduced the epidermis and the hair belonging to it, together with the enamel of the teeth. These consist in reality of dead tissue.

As regards the second proposition that no living organic chemical substance exists, the fact has been objected that all living matter is put together from organic chemical materials; but whoever raises this point must have well-nigh overlooked the fact that these two kinds of substances, the living and the non-living, cannot be identified with one another. In spite of chemical similarity or even correspondence, they exhibit recognizable differences, not alone physiological, but also mechanical and physical. Thus since the application of dyes has secured us a glimpse of the variety of the finer mechanical, or if one may say it molecular, arrangements of matter, it has become possible to differentiate living and non-living parts de visu. We are admittedly only on the threshold of these investigations, but the latest researches upon ganglion cells have shown that even beyond the effects of staining differences between living and no longer living parts may become optically recognizable.

The enthusiasm with which for centuries the doctrine of formative principles and nutritive materials was built up has already become much abated, and has, in part, been entirely abandoned, through the knowledge that no single chemical substance, no kind of nutritive or formative material which can be employed as such, and without further change, for the origination or formation of cells, has ever been found outside the living organism. And yet a chemist of Liebig's importance actually believed that fibrin could be conveyed directly from the meat consumed into the juices of the body, and thence deposited in the tissues. This was a misconception—a relic from the time of the old humoral pathology—which regarded the living body and its constituent parts as arising simply from the coming together of a few ground substances (humores cardinales). Hence arose the doctrine of plastic materials which were pre-existent in the food and blood. With an obstinacy which was only surpassed by their superficiality, these theorists remained convinced that the plastic materials as such effected the construction and maintenance of living matter. They failed to see that the nutriment taken in had first to be prepared by special juices secreted by the cells of the digestive organs, and that both the digestive material and the plastic substance of the blood were rendered assimilable only by means of a new change, which had to be effected by the agency of the tissue cells.

The Doctrine of Plastic Material.

The doctrine of plastic material appeared to have gained new strength through Schwann's cell theory. One must be careful not to misunderstand this designation. Since the cellular theory of animal and plant life has been esablished, many have maintained that Schwann's cell theory is identical with it. Not only is this not the case, but the two stand in exact opposition to one another. Schwann assumed, and believed himself to have directly observed the process, that cells arose in undifferentiated matter, in a fluid or a semi-solid mass, in the following way: First, small particles of a firmer kind were separated off, then these came together into little heaps or clumps, by the internal transformation of which a cell nucleus gradually arose. Round this a new precipitate of firmer substance now slowly accumulated, and from this arose the body of a cell. Hence the original amorphous substance would be the special constructive material, while the nucleus was the true cell builder; Schwann called the former cystoblastem, the latter cystoblast.

It is obvious that from these premises people must have been logically led to the conclusion that every form of organic tissue or organism, every kind of new cell must be separated from the preceding by a definite gap (hiatus), so that each new formation must be grouped as a discontinuous vital origin. Strangely enough this classification arose and was accepted at a time when Darwin was already at work proving that new species arise by the modification of pre-existing forms. But Schwann's cell theory was in truth a resuscitation of the archaic doctrine of spontaneous generation (generatio æquivoca, epigenesis). With the rule of such a creed Darwinism was incompatible.

The supports of this generatio æquivoca have been, as far as zoology is concerned, gradually demolished. The formation of tissue cells from the egg and its partition has been observed throughout the whole animal kingdom. Apparently eggless animals, such as the cestoids and trichinæ, have one after the other been brought under Harvey's law; we know their eggs, their embryos, and their wanderings. There remains, in fine, but one great domain, though this is of the highest importance: it belongs particularly to pathology, and is that of the plastic exudates, which accompany the most important clinical processes, particularly the inflammatory.

It will readily be understood that so essentially pathological a subject would have but little interest for pure natural philosophers. They left it to medical men, who have to occupy themselves with it all day long. But in medicine this territory was held sacred; no one doubted that therein spoke old, well-attested experience. We old students were endowed with the so-called theorem of the plastic exudates from our earliest studies. Translated into our latter-day parlance, such a theorem would recognize discontinuity in most pathological new formations; it would establish—and this is well worthy of note—the grounds for the dogma of the origin of life from non-living matter. Experience has taught us the exact opposite.

Permit me here, gentlemen, to speak a little more personally than is elsewhere my intention. Perhaps it will be more intelligible to the students of this hospital, and will make more impression if I narrate how I myself arrived at quite other views.

A Personal Reminiscence.

It was towards the end of my academical studies, more than fifty years ago, that I had to take up the work of assistant in the ophthalmic clinic of the Charité Hospital at Berlin. My attention was at once directed to the diseases of the cornea. We had severe cases of keratitis, but I saw in them no exudation; numerous cataract operations were performed and the wounds closed, but not by plastic exudation; this was absent from all corneal scars. Could this be explained by the circumstance that the cornea, apart from its circumference, is a non-vascular tissue? My interest was at once focused on the non-vascular tissues. I turned first to the articular cartilages, and behold, here also I found the greatest changes without the presence of exudation, or, at any rate, of plastic exudation. I need only recall the form of inflammation which I named arthritis chronica deformans, and which is described by French physicians as arthrite sèche. My experimental studies on the inflammation of the walls of blood vessels showed that the equally non-vascular intima of the larger arteries, and in part also that of the veins, can undergo great changes without even a trace of exudation being produced. Later on anatomical investigations on endocarditis led to the same result, provided that parietal thrombi were not regarded as exudations. But in all these cases and in every place there were found changes in the tissue cells, active such as swelling, multiplication of nuclei, etc., or passive as fatty degeneration.

I next turned my attention to vascular organs, and in particular to those which were recognized by pathology as the common seats of exudation processes. I refer, first, to the medullary infiltration of the lymphatic (follicular) tissue of the intestine and mesenteric glands in typhoid fever so strikingly depicted by the Vienna school: instead of the amorphous albuminous exudate which was described, I found only cells, and cells of the same kind as those which are normally present in these situations. The same was revealed in the so-called caseous exudates which were at one time ascribed to scrofula, at another to tuberculosis; the cheesy material was admittedly in the main amorphous, but it was in reality not an exudation at all, above all, not a primary product of disease, but rather the secondary product of degenerative necrobiotic changes in parts of the tissues which had formerly been organized, and not infrequently actually hyperplastic.

Biological Significance of the Cartilage Corpuscles.

It is not necessary to go further into details in order to show how great is the realm of this pseudo-exudative process. But I cannot help referring to another series of morbid processes affecting the bones. It was while studying rickets that I first learned the biological significance of the cartilage corpuscles, the nature of which had till then been interpreted in very different ways. I believe that I was the first to distinguish in these corpuscles what must be actually recognized as cells from the merely capsular and extracellular coverings. The rachitic disturbance now brought into fullest evidence an appearance, which was repeatedly misunderstood even by later observers; this was the increase of these cells by division, and the consequent growth of the cartilage.

It was not difficult to follow out the direct transition of the epiphysial cartilage into the periosteum of the neighboring bone, and thus into connective tissue. At this time the whole world was convinced of the correctness of the statement made by Duhamel that increase in thickness in the long bones was effected by the periosteal vessels exuding a nutritious juice out of which the new bone substance was formed. Pathologists had extended this formula to periostitis and the formation of exostoses and hyperostoses; they assumed that between the periosteum and the bone a plastic exudation was excreted and stored up, in which the new osteophyte arose by secondary organization. The consequence of my investigations was that in not one of these spots, neither in the cartilage nor in the periosteum, neither in normal growth nor in rickets or periostitis, was organization preceded by the presence of a recognizable amorphous exudation. On the contrary, it was indubitably shown that the first stage of the changes was an active productive process of cell multiplication; that at the same time the intercellular substance altered in character and underwent a series of successive changes till it assumed an osteoid apperarance; and that then, and not till then, followed calcification and true ossification. There was also no difficulty in adducing the proof that the separate stages of these processes in cartilage and in periosteum ran a perfectly parallel course, although the new tissue was in the one case at first true cartilage, in the other only cartilage-like. If one wishes to designate this process in general it must be called proliferation. Most of these processes are of the nature of proliferation. Whoever calls the proliferative layer an exudation will never obtain an objective view of the actual proceeding.

There is thus not the slightest necessity for the genuine observer to hold to the arbitrary and totally erroneous formula of a plastic exudation. There is no such thing as a plastic exudation which is ever simply amorphous; the cells which may be found in it have not arisen there. With this proof, which can be obtained in numberless other places, the doctrine of the discontinuous origin of pathological new formations is set aside. Every such new formation presupposes a tissue from which its cells arise; this is its matrix. There is no difference in principle between the descent of men and animals from one mother and the descent of pathological new formations from one matrix. Pathology has been somewhat late in arriving at the knowledge of this correspondence, but I think that it has acquired especial value for biology in general.

In order to avoid misunderstanding, it may be noted that not every living cell is capable of becoming a matrix. All cells which are destined for the highest animal funcations prove sterile, or at least very hypothetically capable of proliferation. Ganglion cells, primitive muscle bundles, red blood corpuscles do not come under consideration as regards the theory of pathological descent. The more indifferent cells, on the other hand, above all those of cartilage, connective tissue, and epithelium, exhibit a marked proclivity to bring forth new cells. Many cells again, such as bone corpuscles and fat cells, require a special preparatory metaplastic stage before they can produce a new brood.

Proliferation is an active property of special cells. That it cannot be performed by all cells alike in no way alters the fact that it can only be performed by cells. It is just as little a function of an entire organism, for this itself would then have to be unicellular. In this property lies the explanation of the origin of a whole organism from a single egg cell, that wonderful process which comes to pass but once in the life of an animal. Once tissues have arisen each cell of a matricial tissue may in respect of proliferation be compared to an ovum; it brings forth a new progeny from which new tissue grows. This tissue bears, as a rule, the stamp of its matrix—it is built on the maternal type. This is the nature of descent, and herein lies the key to the knowledge of heredity, that puzzling appearance with which mankind has ever busied itself.

According to the humoral theory heredity was derived from the body fluids and in particular from the blood. According to this idea the blood furnished the means of the continuance of the family and the race; blood relationship explained the similarity not only of the juices, but also of the organs and the whole body. The blood according to its nature determined the goodness or badness of the organization; noble blood generated noble men and healthy organs, bad blood a debased posterity and organs predisposed to disease. In scientific works naught remains of these fantastic surmises; they persist like a superstition in lay circles, but no one now maintains their correctness in serious debate. In their stead has arisen the recognition of the particular value of the mother tissue and its cells. These are the factors of inherited properties, the sources of the germs of new tissues and the motor power of vital activity.

During the development of a higher organism the constitution of the individual tissues changes; they become differentiated by means of metaplastic processes which are in their turn connected with cells and cell-territories. Thus it comes about that people have for ages spoken of dissimilar parts. The complete full-grown organism is built up of similar and dissimilar tissues; their harmonious working gives the impression of a unity of the whole organism which is as a matter of fact non-existent. For the further the organism develops the more its social constitution comes into evidence. It consists of innumerable independent parts which together constitute a single social body. If we take the ultimate elements of these parts we must call them all without exception cells, for cells alone are truly alive and scientific judgment is in the last instance concerned with them.

So little is the whole organism a definite unit that the number of its living constituents is in the highest degree inconstant. Looking at the gross structure of organs we are accustomed to regard a certain number of them as typical peculiarities of human beings or the various genera and species of animals. We expect to find two of each paired organ and one of each unpaired in a single individual. Man, like all other mammals, has a fixed number of bones and teeth, and these numbers are rightly used as diagnostic of man or of the particular variety or species of animal. But these numbers form no essential condition of existence; a man with six fingers or seven toes remains a man, just as a lung with supernumerary lobes or a kidney with an excess of coni medullares remains a lung or a kidney. A woman with three, four or even more mammary glands is thereby no more a lower animal than a man with a tail would be. These are theromorphs ("sports") which can have no influence on our opinion as to the sex of the affected individual or its position in the animal scale.

The Significance of "Sports."

But it will be a long time before general opinion on the significance of "sports" will, even among experts, become unanimous. One sect will connect them with descent, and see in them a proof of atavism; while the other will regard them only as a pathological formation, and will trace this back to an acquired lesion. During the last century we have gone through violent disputes as to whether certain malformations were inherited or acquired. Those who pinned their faith to inheritance had very generally the arrière pensée that the variation was atavistic, and the question soon presented itself as to whether the atavism was derived only from human ancestors, or whether one would have to go back as far as the lower animals to account for it. A universally valid explanation of theromorphism has not yet been found. In my opinion it will never be found. Each single example must be separately studied and explained, and the general value of this explanation will be by no means increased if we find atavism in any single case. Doubtless an acquired variation can also be transmitted, and the circumstance that it is animal-like (theroid) does not go to prove a not acquired but atavistically transmitted condition. In connection with this I may refer to my paper on Race-Formation and Inheritance.[3] I can here discuss only the principal ground for the disputes regarding hereditary diseases which are special to pathology.

Heredity.

Medical men are accustomed to describe as hereditary all diseases which reappear in different generations of the same family. Thus one speaks of hereditary arthritis, hereditary tuberculosis, hereditary cancer. It is in fact not difficult to produce genealogical tables which demonstrate the recurrence of a paternal or maternal disease in children or grandchildren. Much trouble has been devoted, in my opinion without result, to seeking the germs of such diseases in the ovum or the semen. One is hence compelled to pass on to generations of cells which took origin after conception. Here we reach what Roux has designated the post-generative formations. The further we pass away from the time of conception the more numerous examples do we find of alterations in the formation of cells and in the formation of embryonic tissues. But there is at the same time the greater possibility of the alteration having arisen after the formation of the first cells, and hence that the existing cause may have commenced to act at that time. If we set aside this possibility nothing else remains but to assume that from conception, or even from the organs which produced the ovum or the spermatozoon, a predisposition is transmitted which is already present in the earliest cells, even if it cannot be recognized in them.

Upon this theory are built up all interpretations of the inheritance of pathological and, we may add, physiological structures. There are, for example, many extraordinary anomalies in the disposition of hair, either through excess or through defect, and nothing is more common than to see the inherited transmission of such anomalies. But hairs are post-generative structures, and a disturbance in their development can make its first appearance only in a later period of fœtal life; not infrequently, indeed, it is first seen after birth. If such a peculiarity recurs through many generations in the branches of a family or a race it is called hereditary, and referred to a hereditary predisposition. But as undoubtedly excesses as well as defects in hairiness are brought about by acquired disturbances, such as actual diseases, it becomes necessary to seek a recognizable cause for such great anomalies as well. If such a one is found, the aid of a predisposition need not, as a rule, be invoked; one may be quite contented with the cause, which is then the causa efficiens.

Very recent medical history affords the most striking example of a rapid and comprehensive change in opinion regarding a disease formerly regarded as hereditary. Leprosy has for thousands of years passed as a contagious disease. But when about a generation ago the number of lepers in Norway increased to an astounding extent, and one family after another was seized with the malady, the question once more came up as to its hereditariness. Zealous investigators ransacked genealogical tables and church registers, and families were discovered in which leprosy had persisted for decades, or even centuries. So universal was this conviction that the Government, with the consent of the clergy, wished to promulgate a marriage-forbidding decree; only a small majority in Parliament threw out the proposition. I was then requested by the Government to travel through the leprous districts and to make a report; I succeeded in collecting a certain, though small, number of indubitable cases in which all suspicion of inheritance could be excluded. These were in particular persons who came as healthy adults from quite leprosy-free neighborhoods into the infected districts, and after a long sojourn there developed leprosy.

A few years later Armauer Hansen discovered the leprosy bacillus. Medical opinion changed in a moment. The venerable idea of the contagiousness of the disease was revived. Inheritance was denied and predisposition vanished from the treasurehouse of dogmas. I will not assert that the grounds for embracing the present view are absolutely convincing, but I am positive that it is far to be preferred to the dogma of inheritance. And it is an experience instructive to all of us that one single fact, the discovery of a causa viva should have sufficed to dash down the apparently best grounded theory. The safely-established recognition of a known cause has at once converted leprosy from an inherited into an acquired disease.

A similar thing happened a few decades earlier with two skin diseases which were, according to the views of humoral pathology, traceable to a change in the blood, a dyscrasia, namely tinea (favus, porrigo) and the itch. The first actually bore the name of tinea hereditaria, or in German Erbgrind. But the microscope revealed to Schönlein that favus arises from a mycelial fungus, and as regards scabies the popular Italian view was confirmed, namely that a mite (acarus sarcoptes) was its cause. So unstable are the most plausible theories in the light of an objective, practical knowledge.

Exactly the same experience has been met with in relation to certain diseases of the hair. When fungi were found on the hairs, no one cared any more about predisposition, although this possibly does occur. It is certain that there are parasitic forms of alopecia. But fungi cannot be found in every case of alopecia. Still less is this the case in anomalies of the hair associated with excessive growth. Here no other explanation is possible, except the assumption of a predisposition. This holds equally for hirsute races and for families of hairy men as well as for those single hairy cutaneous patches (nævus pilosus) which are regarded as hereditary. The factors in the predisposition are the hair roots, and moreover those which, although arising during fœtal life, belong also to the post-generative group, since they are called later into increased activity.

The general cutaneous covering, in brief the "skin," although doubtless a kind of unitary structure of a generally similar type, is nevertheless in a double sense a socially constituted organ. Not only is it composed of numberless independent cells and cell territories of dissimilar kinds; apart from the vessels and nerves, of the connective tissue, the cutis proper, and the horny epithelial tissue, which forms also hairs and glands, the individual constituents of the skin have a special disposition and are exposed to various external and internal influences. This is best shown by the numerous morbid states to the definite scientific classification of which English dermatologists so early devoted themselves. The existence of maculæ, papules, pustules, and all the various other kinds of skin spots is demonstrated by the fact that in the skin a large number of little communities may be noted from the first as independent or hereditary factors of a particular predisposition. When mothers' marks (nævi), hairs, or even spines grow from them, it follows that in spite of their common origin there must exist a lasting difference between the various localities.

Heterotopia.

There is another highly remarkable question which every year claims the attention of medical men more and more; this is what was described in the old medicine as aberratio loci, in the new as heterotopia. It has long been known that hairs are present, not alone on the external skin, to which they properly belong, but also in internal organs where they are quite out of place; and further, that other cutaneous structures, such as epidermis, sebaceous glands, and cutis appear in such places. We unite this whole group under the general term "dermoids." Modern histologists have long struggled against this theory of aberration, but they have finally had to quit the field, and the view has become dominant that as a matter of fact even in fœtal life smaller or greater rudimentary fragments can be separated from their natural places of abode, and removed to other spots, where they, so to speak, find a new home, and can undergo all the further changes which are dependent on their cutaneous nature. It is thus that cysts and other tumors can arise from them.

The most remarkable examples of such heterotopias are afforded by certain glandular organs which under normal conditions present communities of similar parts, arranged in special divisions. Among them a high place is taken by two organs which have recently demanded much attention, the thyroid and the suprarenal glands. On their surface may often be observed the pushing forward and progressive isolation of separate parts in the form of nodules or small lobes. But occasionally these nodules pass completely out of association with the main body of the gland, and are found disconnected in a perfectly strange place more or less removed from their seat of origin. The farthest journeys are those of the broken-off nodules of the suprarenals; their wanderings lead them to neighboring spots on the kidneys, or even into the interior of those organs, and in other cases over the kidneys into deeper parts of the peritoneum as far as the pelvis. And at all these places they may undergo further change, thus affording starting points for tumor formation.

The same wandering has long been known in respect of teeth, and one knows that large tumors can arise from misplaced tooth germs. The like holds with regard to cartilages, in which similar separations are noted in fœtal life. The history of rickets has shown that islands of cartilage which were originally connected with the primary cartilages of the epiphyses or diaphyses come later in the course of bone growth to lie in the interior of the bones, completely separated from their matrix. From them may arise other new formations such as enchondromata and osseous cysts.

Extraordinary, even astonishing, as many of these cases are, they lose the character of perfect strangeness which they exhibit on superficial examination when we recall a frequent heterotopia which was produced at first rather by accident, then in surgical practice, and finally experimentally, and which is known by the name of transplantation. Since the grafting of pieces of the epidermis has come into use in rhinoplasty, and has been applied, often with great success, to the healing of refractory ulcers, it is no longer surprising to think that living pieces of tissue may continue to exist in unwonted situations, and can there undergo further development. Experimentally—and this has also become important in surgical practice—the first place under this head is taken by the transplantation of periosteum, which can be carried into every possible corner of the body, even through the circulation into the lungs, and which in all these places conserves its vitality and also its power of serving as a matrix for osseous tissue.

In my opinion, the bearing of these observations upon medical theory has been overrated, in that a property possessed by the transplanted tissue, to wit, the property of forming a tumor by proliferation, has been applied to the explanation of tumor formation in general. This is a mistake. Transplanted tissue has no fresh properties beyond those of the mother tissue from which it is separated.

That a sarcoma can arise from a nævus is only possible because the latter is a part of the skin, and because the skin itself can also produce sarcomata. A cartilaginous tumor can arise from an aberrant piece of cartilage in the middle of a bone, and give rise to an enchondroma, but it may also grow out as a simple cartilaginous hypertrophy (ecchondrosis) from permanent cartilage. A dermoid cyst can serve as the basis for the outgrowth of a cutaneous horn, but cutaneous horns and spines can also grow out of ordinary skin. In each of these cases there is only the realization of a possibility of formation which is present in the matrix in general. At the same time each of these cases illustrates the law of the vita propria of the tissues and of their activity linked to this life.

The Doctrine of Parasitism.

It is not without great scientific and practical interest to reflect that these observations illustrate another ancient doctrine, the doctrine of parasitism. This doctrine also is traceable back to Paracelsus, who wished to have disease in general regarded as a parasite. One century after another spread this theory abroad, or at least kept its memory green, although there is a fundamental error of logic in assuming the universality of parasitism. For if the living organism is constituted by separate and independent living parts, each of which nourishes itself, and of which most can propagate themselves and perform their special functions, each one of these individual parts must occupy the position of a parasite with respect to the others: it lives on and lessens the common stock of nourishment. The generally-accepted view regarding parasitism postulates at the same time the harmfulness of this condition. In reality, every part is endowed with individual life so that it can act prejudicially on the remainder of the organism if its activity becomes excessive or defective. A nævus that becomes a sarcoma can assume a really hurtful significance. Hence it is requisite to remove the sarcoma but it is not advisable to remove every nævus. Only an excess of caution can lead to an operation which finds its sole excuse in the possibility that a nævus can conduce to the formation of a sarcoma. In like manner every excessive proliferation (luxuriation) can act harmfully; it may then be described as malignant. But many proliferations are useful, benign or even salutary, as, for instance, the scars which cover a loss of substance. It is just for the sake of a trustworthy prognosis that one must be extremely careful in the application of designations which group whole categories of morbid processes under a common aspect.

The idea of parasitism which we have here discussed in regard to the relation between different parts of the same organism fits in much better where living organisms of a different variety or species enter into an organized corporation, and continue their special life in commensalism. The animal parasites, which exist as entozoa in man and other animals, have been longest known. Since the end of the last century our acquaintance with these entozoa has greatly broadened. Many structures which were formerly regarded as mere bladders (cysts) have been recognized as cestoid worms (entozoa cystica). The trichinæ, apparently sexless animals living in the interior of muscles, were first discovered in this century at Edinburgh; later experimental research succeeded in proving that after the consumption of infected meat these little worms rapidly became sexually ripe in the bowel, and produced not alone ova, but also living embryos and larvæ. Thus one comes to the worms which live in the blood, distomata and filariæ, and which later wander into the tissues. They all have a period during which they have their dwelling as organozoa in the midst of the living tissues of the organism, and become so perfectly incorporated that they carry on their own lives just like the proper cells. Quite new and pertaining exclusively to the investigations of our own time are the parasitic protozoa, beings of so rudimentary a kind that their position in the biological system is even yet not quite clear. Chief among these are the protozoa of malaria, quite microscopical organisms, many of which are such pigmies that they can penetrate into the smallest cells, such as the red blood corpuscles. The darkness which for thousands of years had enveloped a group of most dangerous diseases—the tropical fevers—

has been dispelled by the discovery of these tiny creatures. Important links in the history of these parasites are still wanting; we know nothing definite as to their origin or their career outside the great organisms which are their temporary dwelling place, and nothing, also, as to their mode of action within these organisms, but we hold the threads by means of which perfect knowledge must be attained.

Lastly comes the equally new field of microscopic plants which appear sometimes as mere grains (cocci), at others as minute rods or chains (bacilli), and from which many of the most severe diseases, the élite of the parasitic infectious maladies, take origin. Their recognition began with the study of two very great and most widely spread processes, fermentation and putrefaction, It will ever remain the imperishable merit of Pasteur, not only to have firmly established the dependence of these processes on the activity of microbes, but to have elucidated the further life-history of the germs and their power of producing active chemical or physico-chemical substances, Here for the first time were subjected to experiment parasitic beings which live and carry on their work outside the organism. Hence has been attained the wonderful result which has unlocked new methods both in medicine and in technical science. Above all the results of microscopical research have been supported by trustworthy experiments, and their significance raised above all doubts; hence pathology in particular has won in directions which had hitherto been shunned by all who studied the nature of its processes, a clearness and certainty which has been reached in few other fields.

Veterinary Medicine—The First to Enter the Domain of Pathology.

The first great stride in the special domain of pathology was made in veterinary medicine. The discovery by Brauell of the anthrax bacillus opened the long series of new, and as we now call them, pathogenic bacilli. It would lead too far afield to refer to all of these, or even to enumerate them; it must suffice to mention the two severest diseases, the dreadful effects of which are accounted for by the action of bacilli—tuberculosis and Asiatic cholera. In both cases it was Robert Koch who was fortunate enough, by means of careful, and in part very delicate procedures, to demonstrate the constant presence of certain bacilli in the organs of patients. At the same time it became plain that in spite of the presence of bacilli in both diseases a totally different kind of infection could be recognized in the two; thus, while tubercle bacilli invade the organs, and therein exhibit their deadly action, the cholera bacillus remains almost exclusively in the intestine, and develops more after the manner of an infusorial plant.

For our discussion to-day it is inadvisable to go into minuter details. Only a few of the greater landmarks can be referred to. One of them I will mention but briefly, as I have written many long papers upon it: the necessity for distinguishing between the cause and the essential nature of infectious diseases. Parasitic beings, including, of course, bacteria, are never more than causes; the nature of the disease depends upon the behavior of the organs or tissues with which the bacteria or their metabolic products meet. From my point of view this distinction is of cardinal importance.

Both my other landmarks require somewhat fuller statement. The first is the general relation of the smaller parasites to the diseases determined by them. Under one name which reaches back even into the old days of humoral pathology, and which I was the first to introduce into common parlance, are grouped all the processes which are produced by the invasion of morbid substances, under the general designation of infection. The Latin inficere means as one should say to "dirty." The polluting substance (res inficiens) has been called for ages dirt, impuritas. The products of putrefaction (materiæ putridæ) served as its prototype. In Greek they were called miasms (from μιαίνω, inficere), so that these latter names were applied chiefly to such uncleanness as had been produced outside the body. That which had arisen inside the human or animal body was called contagium. Both miasmatic and contagious substances produced by their penetration into the body severe attacks recalling poisoning. To distinguish such a substance from a true poison (venenum) it was designated a virus. The relationship between infection and intoxication was presumed, but it was not without good reason, considering the origin of the impurity, that the difference in designation was retained.

Among the innumerable infectious diseases it was the contagions which owing to the associated danger to health and life not for individuals only, but for numbers of men and animals, came most prominently to the front. Thus the remarkable property was observed in contagia that they multiplied in the body and so besides infection as such produced an immeasurable quantity of fresh virulent substance. In this respect they approached living beings and the thought arose that they themselves were alive (contagia viva). With the discovery of parasitic animals and plants this conjecture soon became a fact. Nothing was easier than to generalize this fact and to assume the presence of independent organisms in each contagious disease. The younger generation of doctors and students disregarded with fiery enthusiasm the necessity of a practical proof, and was filled with the conviction that all infection depended on the invasion of parasitic organisms. And since it was just the severest infections which were produced by the minutest plants and in which bacilli and cocci, or as they are called for short bacteria, were found in greatest abundance there was circulated for some time that beatific axiom, "Infection is pollution by bacteria."

It was known however that parasitic animals and protozoa can also give rise to infection, and that between bacteria and fungi there is more than a slight difference, but for convenience the name of bacteria is retained as a general designation. Further, a peculiar circumstance happened in that for most of the so-called bacteria there were no botanical names. Owing to the novelty of the circumstances in which they are placed, botanists have not even yet succeeded in their customary duty of giving every new plant its special name, of determining its genus and species, and of assigning it to its proper systematic situation. This can easily be understood and forgiven. But it does not in any way alter the erroneousness of a method which attributes every impurity to bacteria on the sole ground of its contagiousness. It may be said that a contagious disease affords suspicions of a bacterial origin, but it should not be called simply bacterial. To do so hinders further research and lulls the conscience to sleep.

Some of the most important contagious diseases have succeeded in resisting the struggle to find in them a parasitic contagium. For example, many have been the sanguine hopes of finding the parasite of venereal disease and as many have been the failures. The coccus of gonorrhœa alone has been discovered; the bacterium of syphilis itself remains a pium desiderium. With certainty was it expected that a pathological parasite would be tracked in variola; more than one bacterium was actually found, but none pathogenic. In hydrophobia (lyssa, rabies) all appearances seemed to promise that it would prove to be a microparasitic disease; its contagiousness is undoubted; even a vaccine has, as with small-pox, been prepared and yet no one has been able to cultivate a specific bacillus. And the same is the case with some of the most dreaded contagious diseases. Painful as it may be one can do nothing but wait, observe, and experiment. Perhaps pathogenic bacteria will be found, but as long as they are not discovered all assumption is useless if not dangerous. To have learned this is a good omen for a mighty stride in biological methods.

Mode of Infection in Disease.

The other, much further elaborated point in the study of infectious diseases is the question of the mode of action of infection. As long as infection by animal parasites was regarded as the type of infection in general, the destructive action was described as the result of a mechanical action just comparable to a bite or devouring. But the exact study of the larger entozoa and organozoa soon brought about a complete conversion. Neither the tænia solium nor the tænia echinococcus possesses an oral opening. They undoubtedly take in nourishment and draw it from their autosites, or, as they are poetically called, their hosts, but this applies only to the absorption of fluids. The feeding of bacteria and other vegetable and plant-like parasites has to be regarded in the same way. They certainly injure the tissues and organs in which they reside by the consumption of important materials, but their action is not limited to this. This much we have already learned in the study of fermentation and putrefaction. It is admitted that organic matter is destroyed by them, but in addition they produce new substances, some of them eminently poisonous. Thus, it has been known for centuries that alcohol is produced by fermentation. The putrefaction poisons could for a long time not be isolated; first Selmi and then Brieger achieved this result. Gradually one ptomaine after the other was found; for the whole group the new term of toxins has been introduced by Brieger instead of the name virus. They are in part crystallizable, invariably diffusible, chemical substances which are bound up neither with cells nor other formed elements, though they are produced by the cell action of the parasites. They are nowadays described by preference as metabolic products, a perfectly platitudinous notion which has far more sound than sense. In former times people were contented to call them secretory products, and I venture to believe that it is better to stand by this term in order not to lose the analogy with glandular secretion.

There are thus two sides to infection; on the one the actual living parasites, on the other their often poisonous secretions. In the individual diseases now one, now the other property comes to the front. In the case of the hæmatobiotic parasites poison formation may well as a rule count as more important; with those that live in the organs the deprivation of nutriment is much more immediately evident. The invention of artificial nutritive media for bacteria has now provided us with a convenient field for research and observation regarding all these questions.

It would be called carrying coals to Newcastle were I to sketch in London the beneficial effects which the application of methods of cleanliness has exercised upon surgical practice. In the city wherein the man still lives and works who by devising this treatment has introduced the greatest and most beneficent reform that the practical branches of medical science have ever known, every one is aware that Lord Lister, on the strength of his original reasoning, arrived at practical results which the new theory of fermentative and septic processes fully confirmed. Before any one had succeeded in demonstrating by exact methods the microbes which are active in various diseases, or in establishing the special functions that they perform, Lister had learned in a truly prophetic revelation the means by which protection against the action of putrefactive organisms can be attained. The opening up of further regions of clinical medicine to the knife of the surgeon, and a perfect revolution in the basis of therapeutics, have been the consequence. Lord Lister, whom I am proud to be able to greet as an old friend, is already and always will be reckoned among the greatest benefactors of the human race. May he be long spared to remain at the head of the movement which he called into existence.

The Problem of Artificial Imagination.

It remains for me to say a word concerning the other great problem, the solution of which the whole world is awaiting with anxious impatience. I refer to the problem of immunity and its practical corollary, artificial immunization. It has already happened once that an Englishman has succeeded in applying this to the nearly complete destruction of at least one of the most deadly infectious diseases. Jenner's noble discovery has stood its trial as successfully, except in the popular fancy, as he hoped. Vaccine is in all hands; vaccination is, with the aid of Governments, spreading continually. In the same direction Pasteur worked resolutely, even with boldness; he introduced into practice the vaccines of chicken cholera, anthrax, and rabies. Others have followed him, and the new doctrine of antitoxins is continually acquiring more adherents. But it has not yet emerged from the conflict of opinions. Still less is the secret of immunity itself revealed. Even if everything points to the view that immunity is based on the condition of the cells and the juices of their parenchyma, and not on the serum or the humors —these being probably only the means of transport for the immunizing as for the infecting fluids—we must still become well accustomed to the thought that only the next century can bring perfect light and certainty on those points. The homœopathic notion that toxin and antitoxin are one and the same, seems so foreign to our biological ideas that very many experimental and practical proofs will be required before it can be admitted into the creed of the future. Before then we must at least have succeeded in finding a way of strengthening the cells in their fight with bacteria by means of immunity.

Let us, in conclusion, turn once more to the special cells which build up the body, and which arise from proliferation within the body. These exhibit numerous analogies with microbes. They also are independent living beings, or, as Brücke said, elemental organisms implanted in the social structure of the body. They can be removed, transplanted, and grafted in a new situation. If they increase, and thus form a tumor, this can produce metastases by transplantation. But the process as such is always bound up with a certain number of living elements, is always cellular in character. It is not the flowing blood which makes a tumor or a cell; it is the mother cells, from which all new formation originates.

From this consideration I have for decades drawn the conclusion that the local action of the cells, bound up as it is with certain matricial parts, dominates pathological laws, and must also determine the practice of physicians and surgeons. Cellular pathology demands above all treatment attacking the affected parts themselves, be this treatment medical or surgical. It is with great joy that I see this deduction ever becoming more widely generalized, be it with more or with less conscious knowledge. Hence follows in surgery the recommendation of early operation or destruction of the focus of disease.

But cells also, just as bacteria, exercise chemical influences. Apart from the destruction which they effect by absorption, they secrete chemical substances. These appear first as tissue fluids, passing later into the circulation. Thus arises a change in the composition of the flowing juices, particularly of the blood, in fact a dyscrasia. This is, as I have always explained, a secondary dyscrasia, quite distinct from the primary dyscrasias of the humoral pathologists, by localization of which topical diseases, and particularly tumors, were supposed to arise. According to my view, each dyscrasia is determined by the taking in of products of tissue secretion which may now be called metabolic products, or according to the old dictum, recrementitious substances.

The tissue juice, and the excreted material which is returned into the body have of late years gained much esteem. The semen, which I myself have always indicated as the classical example of such a tissue juice, and exhibited as the prototype of secretion by tumors and organ-cells, has provided materia medica with spermin, as has the thyroid juice with thyroidin and thyroiodin. New substances, some resembling alkaloids, others albuminates, are isolated from various organs, experimentally tested and technically worked up. So arose injection or serum-therapeutics, on the results of which we are not yet in a position to pass a final judgment, though every one who is sufficiently unprejudiced must admit that they have in many cases been good. Experience will determine the value of these methods; you must learn by the aid of practice to deduce the lasting theoretical truths. But never forget that the source of all these substances and secretions is the cell activity of living tissue, and that its therapeutical or pathological action on the individual organs or tissues can thus accomplish no aim beyond that of exercising a regulatory influence on cell activity.

May the medical school of Charing Cross Hospital continue upon the newly-opened path with zeal and good fortune. But may its students at the same time never forget that neither the physican nor the naturalist dares dispense with a cool head and a calm spirit, with practical observation and critical judgment.

REFERENCES.

[1] Croonian Lectures, *Proc. Roy. Soc.*, vol. liii.

[2] Morgagni and Anatomical Thought.

[3] Published in the *Bastian-Festchrift* Berlin, 1896, pp 3 3-38

THE TREATMENT OF PUERPERAL CONVULSIONS BY LAVAGE OF THE BLOOD.

Dr. Caillaud (*Gazette des Hopitaux*, August 16 and 18, p. 857) relates the following case, which, as the *Gazette* remarks, shows the value of a method little used, though of proved utility—lavage of the blood:—

A young woman, aged twenty-two, had a premature but normal labor at the seventh month. At the end of the first stage she was seized with severe convulsions. A macerated fœtus was delivered with the forceps. Chloral was given in large doses by the rectum, but she became comatose, and violent attacks of convulsions continued for ten hours. The temperature was 105.8, and the urine contained much albumin. 200 grammes of blood were drawn from the median cephalic vein, and a liter of artificial serum (seven grammes of chloride of sodium in a liter of distilled water at 102 deg.) was introduced into the vein. Only one more attack occurred—ten minutes after the injection. A large quantity of urine was passed an hour afterwards. The coma continued, and two more injections were given, but subcutaneously. She regained consciousness about twenty-four hours after the first injection. As to the relative merits of subcutaneous and intravenous injections, the writer points out that the former are easier of performance, and the latter quicker and surer, but liable to be attended by phenomena of reaction (yawning, clattering of the teeth, etc.), which, however, are not serious. He makes no mention of another method of inducing diuresis much easier of application than the two mentioned, and which, if slower in its action, would, at any rate in the majority of cases, be equally efficacious—the administering of large quantities of water by the rectum.

DIAGNOSIS AND TREATMENT OF DIPHTHERIA.[1]

By JAMES S. IRVIN, M.D., Danville, Va.

As so much has been said and written about diphtheria in the last few years, there are few points which are not thoroughly familiar to a majority of you. It is not my intention to advance any new theories, but to present, as concisely as possible, facts as I see them, gathered from accepted authorities, for your discussion. As the scope of this paper is confined to diagnosis and treatment, I will make only a few general remarks on the disease.

Diphtheria has been recognized since the commencement of the Christian era, and has always been more dreaded than any other disease, on account of its high mortality and the fact that all classes of mankind are liable to it—no age, race, condition or locality being exempt.

It is an acute infectious and contagious disease, characterized usually by a pseudo membrane, which occurs, as a rule, in the throat, but may appear on any mucous membrane of the body or any abraded cutaneous surface. The false membrane always contains the Klebs-Löeffler bacillus of diphtheria. The bacillus does not always act with sufficient intensity to produce the pseudo membrane, but simply a catarrhal inflammation; however, these cases are true diphtheria just as positively as if the action had been severe enough to produce the false membrane. Constitutional symptoms vary according to the severity of the case—from almost nothing in the mildest cases to great prostration, anæmia and cardiac depression in the severer cases. The disease is often followed by local or general paralysis, and is usually complicated with albuminuria and frequently broncho-pneumonia.

The bacillus was first described by Klebs, and afterwards more thoroughly studied by Löeffler. It is found in pseudo-membranes, on mucous membranes, and in the saliva, but probably not in the breath, blood or internal organs of the body of those suffering with the disease. The constitutional symptoms are produced by the poisons (tox albumins) in the circulation, generated by the bacilli at the local seat of the disease and absorbed into the blood.

The diagnosis of diphtheria, made early, is of the utmost importance. Probably there is nothing more difficult in medicine than to diagnose positively the mildest cases at all clinically, or the severe cases in the early stages. To do our patients justice, a clinical diagnosis should always be confirmed by a bacteriological examination. From the fact that the clinical diagnosis is always made first, and any delay in treatment is so disastrous to the patient, more attention should be paid to clinical evidence, and we should not depend too much on the bacteriologist. This is applicable to physicians in cities, who are convenient to laboratories, where the delay would be only fifteen to twenty-four hours, but much more important to general practitioners, who have not these conveniences.

---

[1] Being the "Subject for General Discussion" before the Twenty-ninth Annual Session of the Medical Society of Virginia.

A Clinical Diagnosis.

A clinical diagnosis, in a large majority of cases, can be made fairly accurately after twelve to twenty-four hours. We have to take into consideration the presence of an epidemic, whether or not the patient has been exposed to the disease, and the fact that children between one and ten years of age are much more susceptible. It has been my observation and the experience of many that a second attack in the same person is comparatively rare.

The constitutional symptoms vary so much that they are generally very confusing, but are of some importance. As a rule, they come on insidiously; fever going up slowly, reaching the maximum, 103° F., say, on the fourth of fifth day; though in some cases the onset may be very sudden, coming on with chill, nausea and vomiting, fever high, 104° F., or more. The rule is, in other acute inflammations of the throat, symptoms come on rapidly, fever reaching the maximum on the first to third day, 103° to 105° F., say, and disappear more quickly. The disturbance of the nervous system is usually greater in diphtheria, and a little later there is often some local paralysis, especially of the soft palate, causing regurgitation of food, always more or less anæmia, much more marked later, and in the severest cases, general toxæmia.

The local manifestation (the false membrane) is of most importance. It usually occurs first as a small gray patch on one or both tonsils, with irregular edges, dark congested base, very tough, firmly adherent and imbedded. Gradually it extends to the pillars of the fauces, uvula and pharynx, and becomes thicker later, greenish and darker in color, with edges everted. When this membrane is removed, there is left a more or less smooth, depressed and bleeding surface, and it rapidly reforms. The extension of this false membrane from the tonsil to the walls of the pharynx, or the occurrence of croup while there is only a patch on the pharynx or tonsil, is considered pathognomonic. There is always more or less adenitis, rarely suppuration. Even a slight œdema of the uvula or pillars of the fauces is not usual in diptheria, while œdema and the intense inflammations are common in the diseases due to cocci infections. Membranous croup, in the majority of cases, is true diphtheria, and probably always is when it attacks the larynx primarily.

The most difficult differential diagnosis we have to make is from pseudo-diphtheria, which is an unfortunate term used to denote all pseudo-membranous inflammations in which are not found the Klebs-Löeffler bacillus. The false membrane in this disease, as a rule, is thinner, more friable, yellower, often limited only to tonsils, less tendency to spread, general inflammation of throat much more severe. Membrane much easier to remove, and, when torn off, tendency to leave ulcerated surface and evidences of extensive suppuration. Membrane lasts shorter time, usually two to five days. Adenitis much less and frequently absent. The occurrence of pseudo-diphtheria a number of times in the same person is the cause of the old idea that one attack of diphtheria predisposed the patient to the disease. Constitutional symptoms come on much more rapidly, often ushered in by a chill; fever is higher and symptoms of septicæmia are more marked. When complicating scarlet fever or measles, it usually occurs in the height of the primary disease, sometimes before the eruption. True diphtheria usually occurs after the acute symptoms of the primary disease have subsided.

From follicular tonsillitis a mistake is not often made; the same rule applies as to other acute inflammations of the throat—sudden onset, rapidity, swelling of tonsils greater, and greater general inflammation of throat. In some cases the exudate from the crypts is very tenacious, and sometimes the little dots coalesce, making diagnosis more difficult. As a rule, the exudate is yellower and easier to remove.

From scarlet fever in early stages: More sudden onset, higher fever, severer early nervous symptoms, and presence of epidemic. Evidence of eruption should always be looked for carefully. When eruption is delayed, the clinical diagnosis is less positive.

Catarrhal diphtheria looks like ordinary "sore throat," and cannot be diagnosed positively without demonstration of the bacillus with microscope. There may be the characteristic changes due to the bacillus in epithelial cells of the mucous membrane, but they cannot be made out microscopically.

Bacterial Diagnosis.

Bacteriology has furnished us means for making a positive diagnosis of diphtheria in every case, if properly done and used in connection with clinical evidence. It is as important to have positive clinical diagnosis confirmed (except where one case follows another in the same family) as doubtful cases. So that the patient will not have to undergo all the disagreeable precautions of quarantine, disinfection, etc., unnecessarily. Further emphasis of the importance of doubtful cases is unnecessary. The presence of Klebs-Löeffler bacilli on mucous membrane is not of itself proof of diphtheria, as they are sometimes found in healthy throats; but such cases should be watched. Nor should one examination be considered positive; but, in a suspected case, as many as three cultures should be made if the first two have been negative.

The fact that bacilli exactly like Klebs-Löeffler, though non-virulent, are found in many cases, and another bacillus sometimes found so much alike as to be almost indistinguishable, makes not only cultures and microscopic examinations necessary, but experimental inoculation has to be done before the diagnosis can be complete.

Laboratory Technique.

Collection of the blood serum and its preparation for use in cultures.[2] A covered glass jar, which has been thoroughly cleansed with hot water, is taken to the slaughter house and filled with freshly shed blood from a calf or sheep. The blood is received directly in the jar as it spurts from the cut in the throat of the animal. After wiping the edge of the jar, it is covered with the lid and set aside, where it may stand quietly until the blood has thoroughly clotted. The jar is then carried to the laboratory and placed in an ice chest. If the jar containing the blood is carried about before the latter has clotted, very imperfect separation of the serum will take place. The blood is allowed to remain twenty-four hours on the ice and then the serum is siphoned off by a rubber tube and mixed with one-third its quantity of nutrient beef broth, to which one per cent. glucose has been added. This is the Löeffler blood serum mixture.

---

[2] Scientific Bulletin, No. 1, Health Department, New York.

The broth is prepared as follows: One pound of finely chopped lean beef is allowed to soak in one liter of water in a cool place for at least twelve hours. The fluid is squeezed out through cheese cloth. To this solution one per cent. of peptone, one per cent. of glucose, and one-half per cent. of common salt are added. If this mixture is acid, it must be rendered neutral by adding a few drops of solution of caustic soda. This is now boiled for half an hour and filtered. The mixture is now poured into glass tubes four inches long and two-thirds inch in diameter, which have been previously sterilized by dry heat for one hour at 150° C.

In filling tubes, care should be taken to prevent formation of air bubbles. About 2 c. c. are sufficient for each tube. The tubes are now ready to be coagulated and sterilized. They are placed in steam sterilizer in such position as will expose largest surface possible of the broth, and kept for two hours at temperature just below boiling point—being careful not to allow to boil, or the culture medium will be spoiled. These tubes can be kept for months. The best swab for inoculating culture tubes is a stiff, thin steel iron rod, roughened at one end, around which a little absorbent cotton is wound. These swabs are placed in separate glass tubes with cotton in mouths and sterilized by dry heat at 150° C. for one hour.

To inoculate the culture tubes from suspected cases of diphtheria: The patient's tongue is held down with a spoon and the swab is rubbed gently against any visible membrane, and without laying swab down it is immediately inserted into the blood serum tube and the part which has been in contact with the exudate is rubbed a number of times over the surface of the serum; great care should be taken not to break the surface of the serum. Then the cotton is replaced in the mouth of the culture tube.

The cultures, after inoculation, are kept in an incubator at 37° C. for twelve hours, and are then ready for examination. The surface of the blood serum will be dotted with numerous colonies which are just visible. At this time no diagnosis can be made from simple inspection.

Microscopical preparation is now made by placing a drop of water on a clean cover glass; then a large number of colonies are swept from the surface of the culture medium with a platinum needle. The bacteria are washed off the needle in the drop of water and smeared over the cover glass. The bacteria on the glass are then allowed to dry. The cover glass is then passed quickly through the flame of an alcohol lamp three times in the usual way, covered with a few drops of Löeffler's solution of alkaline methyl blue, and left without heating for ten minutes. It is then rinsed off in clean water, dried and mounted in balsam.

In the great majority of cases, one or two pictures will be seen with the one-twelfth oil immersion lens; either an enormous number of characteristic Löeffler bacilli with a moderate number of cocci, or a pure culture of cocci, mostly in pairs or short chains. In a few cases there will be an approximately even mixture of Löeffler bacilli and cocci, and in others a great excess of cocci. Besides these, there will be occasionally met preparations in which, with the cocci, there are mingled bacilli more or less resembling the Löeffler bacilli.

In not more than one case in twenty there will be any serious difficulty in making the diagnosis if the serum tube has been properly inoculated. In such a case another culture must be made.

Characteristics of the Loeffler Bacillus.

The diameter of the bacilli varies from 0.3 to 0.8 m. m., and the length from 1.5 to 6.5 m. m. They occur singly and in pairs, and very frequently in chains of three or four. The rods are straight or slightly curved, and usually are not uniformly cylindrical throughout their entire length, but are swollen at the ends, or pointed at the ends and swollen in the middle portion. Even from the same culture, different bacilli differ greatly in their size and shape. The two bacilli of a pair may lie with their long diameters in the same axis, or at an obtuse or an acute angle. The bacilli possess no spores, but have in them highly refractile bodies. They stain readily with the ordinary aniline dyes and retain their color after staining by Gram's method.

Animal experiments form the only reliable method of determining with certainty the virulence of the diphtheria bacillus. For this purpose, alkaline glucose broth cultures of forty-eight hours' growth should be used for the subcutaneous inoculation of guinea pigs. The amount injected may vary from one-fourth to one-half per cent. of the body weight of the animal inoculated. In the great majority of cases, when the bacilli are virulent, this amount causes death within seventy-two hours. In the autopsy, the characteristic lesions described by Löeffler are found.

Bacilli, which in cultures and in animal experiments have shown themselves to be characteristic, may be regarded as certainly true diphtheria bacilli, and as capable of producing diphtheria in man under favorable conditions.

Prophylaxis.

Too much stress cannot be laid on the importance of diphtheria prophylaxis. Every child exposed should be at once given an immunizing dose of antitoxine and not allowed to associate with other children. Suspected cases should be immediately isolated. Children with weak throats, and especially enlarged tonsils, in case of epidemic, should use a gargle four or five times daily of 1-5 or 10,000 bichloride solution with glycerine. For a patient with the disease, a large airy room should be selected, with plenty of sunlight. All furniture and hangings should be removed, except that which is absolutely necessary. Instruments used should be kept in 1-40 sol. carbolic acid and hands washed in 1-1000 bichloride. No one should see patient except physician and nurses. The physician should wear rubber coat when in sickroom, and disinfect hands and face before visiting other patients. After recovery of patient, room, bedding and clothing should be thoroughly disinfected. (For direction, see any text-book.) The patient should be isolated until the bacilli disappear from throat, and, if it is not possible to make bacteriological examination, for at least ten days.

Treatment.

In the treatment of any disease, all of us are too prone to use some new remedy which is said to be a specific, to the exculsion of other remedies which are known to be beneficial and used from a scientific standpoint. Especially has this been true in the treatment of diphtheria. As diphtheria is a specific disease, produced by a bacillus, which grows and multiplies at the local seat of the disease, producing its peculiar poisons (tox-albumins), which, on being absorbed into the blood, give us the constitutional manifestations of the disease, the ideal remedy would be a germicide, which would destroy the disease in the beginning locally. We still look to the bacteriologist and pathologist for the remedy.

Antitoxin comes nearer than anything else answering the requirement. Investigation has not yet proven how it acts, whether by neutralizing the toxines in the system or by producing a condition in the blood and tissues making them more tolerant. At any rate, it has been abundantly proven that it modifies the action of the bacilli, both locally and constitutionally.

Many specifics have been proposed at different times, their use based on an erroneous idea of the nature of the disease. In my opinion, none of these have been more disastrous than calomel and the tincture of the chloride of iron, used extravagantly as they have been. It has been proven that there is a great reduction in the number of red-blood corpuscles in nearly every case, and every one has noticed the characteristic anæmia, especially late. Enormous doses of calomel given continuously will increase the anæmia and produce a condition of prostration, weak heart and asthenia, the very reverse of what we are striving for, viz.: an increase of the red-blood corpuscles and hæmoglobin, so that the system will have all the resisting power possible. In my opinion, calomel is most useful, one or two grains triturated with bicarb. soda, divided into ten or twelve powders, one given every one or two hours. This will stimulate general glandular secretion, and will act as a laxative, helping to resist the poisons and in their elimination. It is sometimes necessary to repeat this dose two or three times during an attack.

For reasons just given, iron in some form is always indicated, but not as a specific, nor in the enormous quantities recommended by some. It seems from a practical, sensible view, that the most easily assimilated —some peptonate—preparation, should be given, and never in doses large enough to be embarrassing to digestion.

The concentrated beef juices, if they are practically what they seem to be theoretically, ought to make blood faster than any other food, and should be given along with ordinary milk diet. Although albuminuria is the rule in diphtheria, except in the severest cases, rarely is there œdema to amount to anything, or any symptoms of uræmia. In nearly every case alcohol is indicated, preferably good rye whisky. It should be given often, well diluted, in small doses in mild cases; in severe cases, as a rule, as much as the stomach will tolerate, which is usually great. Its antiseptic action is unquestioned. In no disease is systematic and constant stimulation as necessary. Chlorate of potassium should not be given on account of its irritant action on the kidneys.

Strychnine, unless there is some special contra-indication, should be given in every case throughout the attack and during convalescence. The dose, as a rule, should be small at first, gradually increased, and largest during convalescence. There is always marked degeneration of muscles and nerves. Strychnine given in this way will do a great deal to prevent cardiac failure and palsies which so often follow.

External applications are often soothing, and sometimes help to relieve the congestion of the throat. Nothing is better than turpentine stupes; but should not be insisted on if they are annoying to the patient. It is unnecessary to say that no local application dissolves the false-membrane or destroys the bacillus; but thorough cleansing is of the greatest importance. Absorption of septic material is lessened, and probably some germs are washed away. For this purpose a gargle of Thiersch's solution, if it can be used; if not, a spray used every one to four hours, alternated with peroxide of hydrogen of good quality, swabbed, if practical; if not, sprayed; diluted with one to two parts of water, if necessary, but never used in the nose, is the best local treatment. A fountain syringe should be used to wash the nose and rhino pharynx.

For laryngeal cases, calomel fumigations and steam vapor inhalations from slacking of lime, used thoroughly and systematically, have been found of great benefit. Intubation is often necessary, and, as done at the present day, has almost taken the place of tracheotomy. We see in the text-books little of the use of oxygen gas, which is often indispensable, and has saved many of these cases. It is especially needed where operation is impossible, and is often of great value even after operation has been performed.

The cold tar antipyretics should be avoided. Sponging with alcohol, if temperature goes above 103° F., is best.

For restlessness and sleeplessness, small doses of Dover's powders. The diet should be liquid, and composed largely of milk.

For at least two weeks after disappearance of membrane, antiseptic washes for throat and nose should be continued. Iron and strychnine should be continued throughout convalescence.

Mild cases should be kept in bed, and in severe cases patient should always be supported when taking medicine or nourishment on account of danger of heart failure.

It may have been proven in experimental diphtheria that antitoxin is a specific. Practically this has not been demonstrated in human diphtheria. Possibly we have few cases of pure diphtheria, the majority being mixed infections, and it is possible that some improvement may be made in the production of antitoxin; and when we are better informed as to its proper administration, we may find that we have already in antitoxin the specific. From what we know now, in my opinion, no part of treatment, as stated above, should be neglected, but used in connection with the serum in every case of any degree of severity.

It is needless to give a history of antitoxin or the mode of preparation. American manufacturers probably make the best, and the most highly concentrated serum should be used. It is thought that the large quantity of horse serum that had to be injected when the weak serum was used at first was the cause of so many unpleasant effects noticed. These are becoming much less frequent now. To be most effective the serum must be used early. Damages already done to the vital organs by the toxins of diphtheria cannot be repaired by antitoxin. Always as soon as the diagnosis is made the serum should be given, and when there is an epidemic as soon as the throat begins to get sore or there is suspicion of the disease

Results with Antitoxin.

The dose necessary has not been accurately determined; but should be larger than was used at first, depending upon the age of the patient, and somewhat on the severity of the case. Infants bear proportionately larger doses. For children under two years the dose should be from 1,000 to 2,000 units; above that age, 1,500 to 3,500 units. If there is not a decided improvement, temperature lowered, nervous symptoms lessened and some breaking up of deposit, in twelve to fifteen hours another dose of same size should be given; and still no improvement in six hours, a third dose. The unit is an arbitrary standard used to express approximately the amount of serum necessary to neutralize a given amount of toxines. No special made syringe is necessary. The concentrated serums now contain 500 to 1,750 units in 15 m., so that a specially large barrel is not needed. The needle should be small and sharp, and the whole outfit thoroughly aseptic. The dose had best be given at one injection, and deep in the tissues, injected slowly, giving time for absorption.

The best results from antitoxin are gotten when given in the first twelve hours of the disease; good in the first twenty-four hours; after forty-eight hours, the results are not so good; but at any time there is hope of benefit, and should always be tried.

The immunizing dose is from fifty to three hundred units, and in a majority of cases affords protection for thirty days.

In this connection I will repeat a summary of report made by New York Health Department:

"According to thirty-five published reports, there 17,516 persons, children and adults, to whom immunizing doses of antitoxin have been given, with the result that, though exposed to infection from diphtheria in families and institutions, and during epidemics when the disease was raging, only 131 of those immunized were attacked later, and of them 129 were mildly affected (109 within thirty days and twenty after a month) and recovered; while only two died of the disease, one within and the other after thirty days from the time of injection. The two fatal cases received far too small doses to produce immunity or the diphtheria was complicated with other diseases not mentioned. The mild cases all recovered, in some a repetition of the injection being given." This report was made from statistics up to October 1st, 1896, and from nearly all over the world.

I will not bore you with a long list of statistics, and knowing that you all consider those from private practice most important, will give summaries of the reports made by the American Pediatric Society, which seems to be the fairest. The first is taken from Holt's "Diseases of Infancy and Childhood," page 994. "Results in Private Practice." The largest number of cases from this source has been brought together by the collective investigation made by the American Pediatric Society. This embraces 5,794 returned by 613 physicians from 114 cities and towns in America, with an average mortality of twelve and three-tenths per cent. But in this report is included every case returned in which the serum was given, many of which were moribund at the time of injection, the serum being used only to gratify parents. If these cases and those dying within twenty-four hours after the first injection be excluded, there remain 5,576 cases, with a mortality of eight and eight-tenths per cent. Of 4,120, injected during the first three days, the mortality was seven and three-tenths per cent., or, excluding the moribund cases and those dying twenty-four hours after the first injection, but four and eight-tenths per cent. The diagnosis of diphtheria was confirmed by a bacteriological examination of 83 per cent. of these cases; in the remainder it rested upon the clinical symptoms."

It would appear that laryngeal diphtheria would afford the best test of the efficiency of antitoxin.

The following summary of the second report from the committee of the American Pediatric Society includes only laryngeal cases, and in which antitoxin was used. The investigation was made to find out, besides the mortality, the per cent. of cases requiring operation when antitoxin was used. (Published May 15, 1897, *Medical Record*):

Summary.—"Sixty thousand circulars distributed throughout the United States and Canada. Time allowance, the eleven months ending April 1, 1897. Whole number of cases in this report, 1,704; mortality, 21.12 per cent. (360 deaths). They occurred in the practice of 422 physicians in the United States and Canada.

Operations employed:

"(a) Intubation in 637 cases; mortality, 26.05 per cent. (166 deaths).

"(b) Tracheotomy in 20 cases; mortality, 45 per cent. (9 deaths).

"(c) Intubation and tracheotomy in 11 cases; mortality, 63.63 per cent. (7 deaths).

"Number of States represented, 22—the District of Columbia and Canada.

"Non-operated cases, 1,036; 60.79 per cent. of all cases; mortality, 17.18 per cent. (178 deaths).

"Operated cases, 668, or 39.21 per cent. of all cases; mortality, 27.24 per cent. (182 deaths).

"Two facts may be recalled in connection with this paragraph. First, that before the use of antitoxin it was estimated that 90 per cent. of laryngeal diphtheria cases required operation, whereas now, with the use of antitoxin, 39.21 per cent. require it. Second, that the percentage figures have been reversed; formerly 27 per cent. approximately represented the recoveries, while now, under antitoxin treatment, 27 represents the mortality. To put it in other words, before the use of antitoxin, 27 per cent. recovered; now, 73 per cent. recover, and in this the severest type of diphtheria."

The present report will strike many members of the Society as revealing a mortality a little too large in each of the two classes. The mortality is large—larger than the personal experience in private practice of many would expect. The reasons for this are (1), that antitoxin is still used too late, either from procrastination on the part of the physician or objection on the part of friends; or (2), in a half-hearted way, which shows itself in doses one-tenth or one-fourth as large as they should be. In truth, both physicians and the friends of the patient are timid.

"If the committee is asked to put forth the three most valuable points established in this eleven months' work, they are:

"First. The mortality of laryngeal diphtheria at present rests at 21.12 per cent.

"Second. That 60 per cent. approximately have not required intubation.

"Third. That the mortality of operated cases is at present 27.24 per cent."

After all, the most convincing evidence we have is that which comes under our own observation.

During the last few weeks I have personally questioned nearly all of the physicians in Danville, and find that the mortality of membranous croup, until the advent of antitoxin, has been 85 to 90 per cent. Since then there have been fifteen cases treated with antitoxin, with only one death, which was an infant—the disease following an attack of bronchopneumonia.

Discussion.

Dr. E. C. Levy, of Richmond, Va., in opening the discussion, said that Dr. Irvin had given a most excellent outline of the diagnosis and treatment of diphtheria, and that to go fully into details on these subjects would be as impossible in the discussion as it was in the paper. He wished, therefore, to limit his remarks to the consideration of one point under each division of the subject—bacteriologic diagnosis and antitoxin treatment. To these two were due the complete revolution in handling diphtheria which had been brought about during the past few years.

To describe the technic of bacteriologic examination in suspected cases of diphtheria would be profitless in this connection, since those who had the requisite laboratory equipment possessed also the information required, and to those lacking such equipment a mere verbal description would be valueless.

Of all the commonly given clinical points of distinction between diphtheria and pseudo-diphtheria, not one was absolutely trustworthy. The general appearance, extent and adherence of the membrane, the glandular involvement, systemic disturbance, etc., were all points of value; but the first of these were unreliable, and the last named could be determined only at a time too late to be of real value in influencing treatment. Bacteriologic diagnosis could decide the question positively within twelve hours. This offered an easy solution of the problem to doctors in cities where the services of a bacteriologist could be secured, and under these conditions this valuable means of diagnosis should be employed in every case into which the question of diphtheria entered, and should not be reserved only for those cases commonly considered doubtful. The advantage of securing positive information could not be over-estimated, not only in regard to treatment, but also as bearing upon the question of isolation. The country doctor would ordinarily be forced to make his diagnosis from clinical evidence, combined, in some cases, with the history of an epidemic. While not one of the classic symptoms was positively trustworthy, still they were of great value where considered together, and offered all that could be relied upon in the absence of facilities for bacteriologic investigation.

Regarding antitoxin, there was practically a unanimous verdict in its favor among those who had employed the remedy to any extent. The importance of early administration and sufficient dosage seemed to be not yet fully appreciated. Wherever circumstances permitted, the remedy should be given in every case where there was a question as to whether or not the disease was diphtheria. If the case progressed satisfactorily, or turned out not to be diphtheria, no repetition would be necessary. Just here the value of bacteriologic diagnosis was most valuable, since before the time for a second injection the nature of the case would have been positively determined. It was useless to go into statistics to prove the value of antitoxin. The employment of the remedy in a few cases would convince the most skeptical.

While speaking on this subject mention must be made of the sad spectacle of Behring's securing a patent on antitoxin in this country. By such unethical conduct he had fallen from the position of a benefactor to the human race down to the position of a mercenary schemer, to be classed along with the inventors of the obstetric forceps.

The value of calomel fumigations had been mentioned in Dr. Irvin's paper. In many cases of urgent dyspnœa from laryngeal diphtheria, the employment of this remedy would give satisfactory, and, at times, marvelous relief, until the antitoxin had time to act, thus dispensing with operative procedure. The advantages of calomel fumigations over steam inhalations from the croup kettle or slacking lime were the greater ease and cleanliness of the procedure, as well as its more prompt and satisfactory action in most cases.

As regards operations for laryngeal obstruction, intubation was the ideal procedure when the physician was expert in its performance. Where this was not the case, it would be best for him to resort to tracheotomy, as there was no question of any physician's getting into the trachea with a knife where it was urgently demanded, whereas great damage and ultimate failure would usually result from the attempts of an unskilled operator to perform intubation.

Dr. H. G. Leigh, Jr., of Petersburg, Va., who was the other Fellow elected to open the discussion, had nothing to add to what had been said.

The President then announced the subject open to general discussion by those present in the order of their recognition by the chair.

Dr. J. H. Neff, of Harrisonburg, Va., remarked, regarding intubation, that it is often demanded by country doctors remote from postoffices or telegraph stations, or druggists who keep supplied with antitoxin. It is an easy operation to perform if the party has had any practice in it. Country doctors should perfect themselves in the operation by practicing it on some willing subject. A set of O'Dwyer instruments should be in every emergency case of the country doctor; he should not consider himself equipped without it.

Dr. Henry G. Holton, of Brattleboro, Vt., remarked that an important point in the clinical diagnosis of diphtheria consists in the swelling of the posterior glands of the neck. Some cases of diphtheria in the cities of his State have been traced to the emanations from the manholes of sewers. Vermont has a bacteriological laboratory, and test-tubes properly prepared to receive the scrapings from supposed diphtheritic surfaces are to be found in all city drug stores. These are properly sealed and sent to the laboratory, and reports of results of examination are telegraphed at the earliest practical moment. As for himself, in suspected cases he does not wait for the laboratory report to come back to him. Practically speaking, his only treatment is the administration of antitoxin hypodermically. The general experience of the doctors of his city as to the value of antitoxin is that it is so generally curative that the physician who does not use it, and as soon as possible, would be considered criminal.

Dr. George Ross, of Richmond, Va., stated that he uses antitoxin as the most important factor in treatment; but he would feel that he had not fully done his duty unless he had also used other well-known remedies, such as muriate tincture of iron, mercuris bichloride, whisky, concentrated foods, etc. He mentioned a desperate case of laryngeal diphtheria in which he thinks other things than antitoxin were very material helps in the cure of the disease.

Dr. William T. Oppenhimer, of Richmond, Va., remarked that as health officer of that city he had often noticed the occurrence of different infectious diseases in the same house in different years.

Dr. H. E. Jones, of Roanoke, Va., believes in the adoption of every line of treatment that comes from a scientific source. He uses all the old-time remedies that have proven themselves valuable, but would feel himself culpable if he did not also use antitoxin in view of the wonderful reports that are constantly coming from the medical world.

Dr. L. B. Anderson, of Norfolk, Va., after long study of the causation of diphtheria, feels like exclaiming, in the language of one of our Congressmen, "Where am I at?" One authority tells us that he is constantly finding bacilli in the throats and mouths of children, and yet no diphtheria. Another authority recalls that he has had numerous cases of diphtheria, and yet no bacilli are to be found. Such contradictory reports coming from different eminent authorities leads him sometimes to doubt the accuracy of any statements that have been made as to the specific curative bacteriology of diphtheria. There appears to be reason to believe that bacteria are nature's scavengers—that they help to get rid of the disease, and are not themselves the causes of diphtheria or other like infection. He is unwilling even yet to commit himself to the full acceptance of the doctrine that because the Klebs-Löeffler bacilli are often found in diptheria, they are the cause rather than the agents of cure of the disease. He thinks the profession is going too fast in so emphatically giving its endorsement to antitoxin as the cure of diphtheria. When reports of good from its use come in, we hear immediately afterwards of its long list of failures. If it is a good thing, let us first prove it before becoming so enthusiastic in its favor.

Dr. Livius Lankford, of Norfolk, Va., does not see how any doctors who have timely used antitoxin can doubt its curative as well as its immunizing virtues. He referred to several cases in his practice in which the immunizing and curative effects of the use of antitoxin had proven most satisfactory. In cases of croup, he was wedded to the older remedies; and even in such cases, if he feared the association of diphtheria, no damage had ever resulted from the conjoint use of hypodermics of antitoxin.

Dr. Stuart MacLean, of Richmond, Va., would like to know if Dr. Anderson had followed up the history of bacteriology. Can he explain on any other doctrine than that Klebs-Löeffler bacilli are the cause of diphtheria, when it is shown beyond controversy that the introduction of pure cultures of these bacilli into the system is followed by diphtheria, and only diphtheria? The changes which the toxin of the bacillus undergoes in the system also cause at least a temporary immunity against the disease.

Dr. J. Philip Slaughter, of Theological Seminary, Va., spoke in the same general line as Dr. MacLean in rebuttal of the skepticism of Dr. Anderson. Of course, what did good before the introduction of antitoxin is still valuable in diphtheria. So that he urges the use of general remedies along with the injection of antitoxin treatment.

Dr. Jacob Michaux, Richmond, Va., said that during a period of over one year he had used locally undiluted Monsel's solution—applied with a cotton swab when that was tangible—and so far his results have been especially gratifying. This application is usually quite painful, and with quite young children he did, at times, have to use the drug reduced in strength one-half. In some cases he had found its use in the form of a fine spray much preferable. Monsel's solution is not incompatible with antitoxin or the other customary remedies, and, therefore, they may be used in conjunction. Good results follow, as a rule, in about twenty-four hours, sometimes less. It does not excoriate but peels off the membrane.

Dr. J. H. Mapp, Buena Vista, Va., regrets that any practitioner should express a doubt as to the efficacy of antitoxin. His own experience, and that of other doctors with whom he had been associated, abundantly satisfies him that, properly and timely used, antitoxin comes near being a specific in incipient diphtheria, and generally valuable, even when used after the second day.

Dr. T. W. Simmons, Martinsville, Va., remarked that he had not had a case of diphtheria for the past five or six years, and for this reason he has not used antitoxin. His experience with the disease had led him to look upon all malignant cases as hopeless, regardless of the line of treatment followed. Whenever he was called upon to attend a case of this kind, he had gotten the best results from the use of calomel, chlorine and liquor. Monsel's solution he had used, and he agreed with Dr. Michaux in his remarks on the subject.

Dr. C. R. Burks, Sherwood, Va., said he does not believe in "bugs" as the cause of diphtheria. The value of turpentine in the treatment of the disease has not been insisted upon. He uses it locally and internally. Full doses of whisky form a most excellent adjuvant.

Dr. Swithin Chandler, Wilmington, Del., remarked that an important duty of the physician is to prevent those exposed to the germs of the disease from having it. He referred to a malignant case of diphtheria in one family who was seen by at least twenty visitors before the nature of the disease was recognized. As soon thereafter as possible, all were immunized by antitoxin hypodermics, but no other than the original case occurred. As to the proper therapeutics of the disease, we must not forget that it is a ptomainic one. Hence we have to give medicines as indicated to combat the poisonous effect in the system. Back of the germs that produce the disease, we must be watchers of the condition of the patient. Treat the morbid conditions as they present themselves. Use judgment in prescribing. Give the older, well approved medicines as occasion requires, or as experience has approved; but be sure to use antitoxin in doses as needed. Sometimes ten to twenty injections of antitoxin may be demanded in a given case; but generally speaking, one or two hypodermics at intervals of six to ten hours have been sufficient.

Dr. D. A. Kuyk, Richmond, Va., thinks prevention is better than cure. We should educate the public to an appreciative sense of the importance of prevention of diphtheria, so that we may get their united help in applying the means of prevention. He has often noticed families in which there has recently been diphtheria or other infectious disease moving from house to house without using any means of disinfection of the befouled houses. Such wanton exposure of innocents to disease should be taught to be either criminal thoughtlessness or criminal indifference as to the effect of the infected house air, walls, etc., upon those who are moving in. Many cases of diphtheria might undoubtedly be traced to such criminality if we had the means of ferreting out the cause of each case. It should be an irrevocable law, required to be strictly executed, that parties moving out of a house in which diphtheria or other infectious disease has existed, should be required that that house shall be fumigated and thoroughly disinfected. If the people were taught the great importance of this measure, they would soon learn to demand that the house into which they are about to move should likewise be first thoroughly disinfected.

Dr. Irvin closed the discussion with the remark that while appreciating the compliment of the discussion which his paper had provoked, he had nothing specially to add to it.

DANGERS OF BLISTERS.—Dr. Huchard (*Bull. de l'Acad. de Méd.*, No. 7, 1898) states concerning blisters:—

(1) They often produce an open wound which facilitates secondary infections or the absorption of cantharides.

(2) Besides tending to cause inflammation of the kidneys and bladder, they have a general congestive action.

(3) Even in those diseases where they are most frequently used, such as pneumonia and pleurisy, they should be discarded, as they increase pulmonary congestion.

(4) Blisters tend to arrest excretion by the kidneys, so important in all infectious diseases, and this is especially harmful in those normally causing albuminuria. Instead of aiding the excretion of toxins, blisters are likely to produce a fresh intoxication.

(5) The only real use of blisters is in their revulsive and analgesic action, but the effect is better attained by less dangerous means, such as mustard plaster or cold baths.

* * *

ABORTION—ACCIDENTAL, ESSENTIAL, CRIMINAL.[1]

By WILLIAM D. HAGGARD, JR., M.D., Nashville, Tenn.
Associate Professor of Gynecology, University of Tennessee; Adjunct Professor of Gynecologic and Abdominal Surgery, University of the South; Fellow of the Southern Surgical and Gynecological Association.

It would appear that this subject is commonplace enough, but with the voluminous literature on the subject there yet remains a distressing lack of clearly defined rules of action in its management. The very frequency of abortion should render it the subject of our most earnest consideration. Guillemot and Develliers assert that it occurs once in every four or five labors. It has been computed that 90 per cent. of all married women have at least one abortion. The appalling increase in criminal abortion in this country has demanded the most interested solicitude of the exponents of theology, law and social economics. The half-revealed power of the medical profession in the suppression of this evil should awaken us to our duties and potentialities. I need but mention the perilous sequences (immediate and remote), viz., the production of diseases of the uterus and appendages, and laying the foundation for grave constitutional disorders. I have only to call attention to the incalculable detriment to the morals and future of the Republic, to ask indulgence in the discussion of such a well-worn subject.

I shall define abortion to be the premature expulsion of the product of conception before the end of the fourth month. I will adopt the classification of most American and English authors in considering the termination of gestation between the end of the fourth and the end of the sixth month as miscarriage, and from the end of the sixth to the ninth month as premature delivery.

Causes.

I. Paternal.—Advanced age, lowered vitality, due to overwork or excesses (especially venereal), syphillis, tuberculosis, chronic lead or alcohol poisoning.

II. Maternal.—Causes comprised in the general conditions are the same as in the sire; and causes personal to the woman, such as bad hygiene, insufficient food or obesity.

Most acute or general diseases may produce abortion; as: Statistics show that it occurs in two-thirds of the cases of typhoid, 118 times in 213 cases of pneumonia; the action of most infectious (malaria), and many contagious diseases (exanthems) cause it by the poisons in the blood; influenza, by its toxic effect on the vaso-motor system or perhaps by the mechanical effect of coughing. Eclampsia may cause death of the fœtus, by ptomainic poison, or possibly convulsive action of the uterine muscle. Chorea likewise produces it by the exhaustion from the almost incessant muscular action. Diabetes, pulmonary and cardiac diseases are also enumerated. Genital excesses act by mechanical means and are the cause of the rather frequent abortion of young women five or six weeks after marriage. This fact is best illustrated in the case of prostitutes. Minor surgical operations, such as the extraction of a tooth, is an example of the class of reflex causes. Any shock, moral or physical, may be sufficient to precipitate an abortion. Sudden fright, acting on the nerve centers, causes a severe spasm of the uterine muscles, which may cause placental apoplexy. A clot forms which, acting as a foreign body, gives rise to uterine contractions which may result in a few hours in abortion.

---

[1] Address delivered before the Nashville Academy of Medicine.

III. Local.—Retro-displacement of the uterus is the most frequent. The womb is unable to expand in its unnatural position.

Fibroid tumors or adherent adnexa act by interference with involution. Sub-involution with its concomitant endometritis, causes from 10 to 15 per cent. Extensive lacerations of the cervix do not allow the proper support to the ovum from below, and it simply drops out. Trauma may, of course, be causative.

IV. Fetal.—Anything which causes death of the embryo. Syphilis is conspicuous.

V. Placental.—Degeneration of the villosities of the chorion, hydramnion and vicious insertion of the placenta constitute the chief pathology of the placenta occasioning abortion.

Habitual Abortion. This term is used to designate the repetition of abortion at or near the same period of gestation, in successive pregnancies. It is due to one of the causes above enumerated, the most frequent of which is syphilis, paternal or maternal, causing either death of the fœtus or fatty degeneration of the placenta. The detection of the cause is the key to its correction.

Modus of Premature Expulsion.

An attempt has been made in passing, to accord the accepted explanation of the production of abortion by the various causes enumerated. In the majority of instances the nervous system is the operative agent. The nerve centers incite the uterus to contraction, the resistance of the cervical segment is gradually overcome. The dilating effect of the ovum follows its partial detachment from contraction. The hæmorrhage occasioned by this detachment further stimulates the uterus to renewed contraction. The products are then expelled in any of the following ways:

(1) The fœtal shell may be expelled (early and infrequent).

(2) The fœtus, amnion and chorion may be detached at the decidua serotina, leaving the decidua vera (usual).

(3) The fœtus alone may be expelled, leaving the amnion, chorion and vera (common).

(4) The fœtus and membranes may be cast off after the placenta is formed, it being retained.

Abortion during the first month gives rise to symptoms simulating retarded menstruation. The ovum is expelled entire, but it is so small that it is rarely discovered. When the membranes are ruptured in spontaneous abortion in the first three months a suspicion of criminal abortion always arises.

After the third month the uterine contractions being more powerful may rupture the membranes, and if the placenta has not been detached by contraction and hæmorrhage, the abortion is completed in two stages, viz.: 1. Escape of the embryo. 2. The expulsion of the membranes.

When the membranes are ruptured, the embryo escapes, the thin umbilical cord breaks, and the cervix commonly closes.

Whether the membranes will be thrown off subsequently is problematical. There is greater danger of retention of portions of the product at this early period of the development of the placenta than later or at term, because of its imperfect construction and more firm union to the hypertrophied decidua. When delivery is accomplished in two stages the placenta and membranes usually follow in from fifteen minutes to an hour. If it is not thrown off in four hours, it may be said to be retained.

Symptoms.

In the first two months abortion is usually sudden and rapid. There may be considerable lumbar pain, and a dull, heavy cramp-like pain. On the other hand there may be little hemorrhage or pain, and the woman regards it simply as profuse menstruation. The evidences of abortion escape notice. After the third month it resembles normal delivery more in duration and pain, which is more severe and rythmical. The hemorrhage is likewise greater. I wish to direct special attention to hemorrhage as the most frequent initial symptom. It usually precedes the pain because the early contractions may be so slight as to be unnoticed.

Vomiting is also an attendant inaugural symptom. A vaginal examination is imperative, not only to establish the diagnosis with certainty, but to determine whether or not the impending abortion may be averted.

A threatened abortion is inevitable: (1). When the membranes are ruptured. (2). When the fetus is dead. (3). When any part of the ovum is engaged in the cervix. The clinical determination as to whether it is inevitable or not is found in the dilation of the cervix. If, with this condition, the hemorrhage persists, the pain is unabating, the ovum descends and is felt through the dilated cervix, or portions of it escape, then abortion is unpreventable. The essential question of treatment of threatened and inevitable abortion, to be considered later, revolves on this decision. Abortion having occurred, the discrimination between complete and incomplete is paramount. If the uterus has contracted, the os closed and retracted, the hemorrhage ceased and pain subsided, these may point to completion of the process. But to make the diagnosis positive the mass expelled should be carefully examined. The chorionic villi present a characteristic shaggy coat when floated in water. It resembles a chestnut burr. The mass should be carefully scrutinized and gently teased apart, to aid in ascertaining whether the membranes have all been extruded.

If fortunately the act is complete, no further solicitude need be entertained. The case progresses rapidly to a favorable conclusion.

Incomplete abortions comprise all the varieties heretofore mentioned. The only immediate evidence of its incompleteness is furnished by the examination of the product expelled. The patient may appear perfectly well for a time, but there exists the most certain and insidious conditions for future and speedy mischief. The dangers that menace her well-being are hemorrhage and sepsis. The first may be continuous from the time of the partial delivery or may recur with sudden and furious onset. It may continue without interruption fitfully for weeks, or until the remnants have all been shed.

It is apparent that such retention constitutes the best possible soil for the development of sepsis. The uterine mucous membrane in the first three months is hypertrophied and thick before it has undergone the physiological atrophy that begins at the end of that time. It differs materially from the thin, delicate membrane at term. This thickened decidua after its relations are disturbed, dies from the cutting off of its blood supply. The element of sepsis is only needed, and this is quickly furnished, and is usually the streptococcus. Its invasion is insidious, but when multiplication has taken place, it expresses itself in a very decided manner. Chill (or rigors commonly) is soon followed by elevated temperature and increased pulse rate. Fetid discharge is usually present. The constitutional symptoms vary according to the dosage of the attack, and it may range from a mild intoxication to a rapidly fulminating attack, quickly succeeded by peritoneal extension and its consequences.

Treatment.

The treatment of abortion may well be considered under these heads:

I. Prophylactic Measures for Habitual Abortion.

II. Preventive Treatment of Threatened Abortion.

III. The Treatment of Incomplete Abortion.

I. In a woman who aborts habitually, the exact cause should be defined and treated accordingly. Syphilis being the most prevalent cause should be sought for and treated. If in doubt as to which parent is guilty one must treat them both.

The other maternal causes, such as anemia, plethora and general sysemic conditions, should be removed. Displacements (which have been seen to be second in importance as a causative element) should be rectified. A properly fitting pessary for retroversion has brought many women to term without accident. Laceration of the cervix should be repaired according to the method of Emmet. Pregnant women should, as a rule, be enjoined against too frequent copulation, violent exercise and hard labor.

With women who present no well-defined cause, and yet habitually abort, it sometimes becomes necessary to keep them in bed absolutely from the sixth week to the fifth month. As it is known that the accident is more prone to occur at the time of the menstrual period, a compromise on recumbency for a few days prior, during and subsequent to the period might answer.

II. In threatened abortion absolute composure in bed and perfect quietude is necessary. Full doses of opium every two hours is indicated, and the efficacy of viburnum prunifolium has many advocates.

If there is hemorrhage, a firm tamponade of gauze may be necessary to control it, but as even a vaginal tampon is liable to stimulate uterine contractions, I do not think its use would be justifiable, save to temporarily check severe hemorrhage.

III. In inevitable abortion the attitude of the practitioner is one of non-interference, until nature proves inefficient in completing the process. There is one sovereign remedy in this stage. One that cures every indication. I refer to the tampon. This will check the hemorrhage for the time, stimulate the uterus to contractility and be a trustworthy barricade against sepsis. The simplest and best material is iodoform gauze. The vagina is best packed in Sims' position. The entire canal should be vigorously antisepticized by pledgets of cotton in bichloride, 1 to 2,000. Rigid and efficient asepsis of hands and instruments and dressings are demanded, for here as elsewhere "the willing and gentle but unclean hand" is the greatest danger. A plug of the gauze tampon should be inserted in the cervix and the vagina tightly packed. This is usually successful in terminating the process in a few hours, and when the gauze is removed the fatal ball will frequently be found in the dressings. If, however, everything has not come away, the dressing may be repeated with the same scrupulous regard to cleanliness. If after repetition of the dressing there is still retention of membranes, our duty is to empty the uterus without delay. This is just as incumbent as to remove a retained placenta at term, and for the same reason. Neither delay or expectant measures are permissible. There has been no case of death in Bellevue from this condition since the custom of emptying the uterus in every incomplete case has been adopted. An eloquent plea for aseptic environs is found in Pinard's statistics. The mortality of cases beginning in the hospital was .8 per cent. The death rate in cases beginning outside was 27.6 per cent.

Anesthesia is necessary for thorough and complete work. When the preliminary "scrubbing up" of the vagina is completed the patient may be allowed to remain on the back or placed in Sims' posture as the operator elects. The cervix is fixed with tenacula forceps and the cervix dilated with steel-dilator until it will admit intra-uterine exploration with the surgically clean finger. This is the best instrument for this purpose. The whole interior may be explored and the retained products loosened and removed. Occasionally a forceps will be needed. The endometrium should then be carefully and systematically gone over with the sharp curet. There is no danger in a curet in this condition in gentle and competent hands. The layers of decidua will escape finger or forceps; but will be surely detached by curetting. Large bulks of placenta and membrane will elude the curet that can be extracted with a crook of an aseptic finger. Each has its uses for definite purposes. The cavity should then be irrigated with boiled salt solution (dram of salt to pint of water) and a strip of iodoform gauze carried to the fundus to excite contraction and to drain. It may be tied to vaginal gauze to facilitate removal in 24 to 48 hours. Bichloride douches and vaginal packing for a few days will be all that is needful.

In cases septic from neglect or delay, I conceive the sharp curet is absolutely contra-indicated. By its use the efforts of nature to prevent rapid toxemic invasion by throwing out a zone of leucocytes, under the endometrium as a barrier, will be destroyed. Lymph spaces will be thus opened and unprotected from infection. It is quite impossible to bacteriologically cleanse an infected uterus by any amount of curetting and irrigation. One will readily appreciate that the mechanical scraping will remove this protective area, and very likely inoculate the denuded underlying tissue. All that can or should be done after the removal of the bulk of placenta or membranes, with finger or forceps, is to gently remove the flakes of decidua, the culture-medium for bacteria, by a dull curet, supplemented by antiseptic irrigation and drainage. This gets rid of the supply of sepsis, leaves nature's bulwark undisturbed and drainage completes the cure. As an auxiliary to the dull curet, I use a pledget of iodoform gauze wrapped on a long forceps, which is rotated in every direction so as to wipe out the cavity. It is a very simple and harmless way of removing detritus. Badly septic cases may require repeated intra-uterine irrigation, together with the general measures for combating sepsis.

Essential Abortion.

Thomas gives this rule: "Whenever it is felt that the prolongation of pregnancy is going to destroy the life or intellect, or to permanently ruin the health of a patient, abortion should be brought on." To express my own views, I will add "and only then." The conditions rendering this imperative may be listed as:

1. Uncontrollable Vomiting.—This is the excuse, in my opinion, for many unnecessary procurements. It is rarely absolutely indicated and then only after the all approved general and local measures have failed. The correction of a displacement, the application of silver solution to the cervix, administration of cerium, ipecac and ingluvin will often render it needless. Milk through the stomach tube, following gastric lavage, will frequently be retained, and rectal alimentation will keep up nourishment. If emaciation progresses, pulse becomes weak and rapid and the fever of exhaustion supervenes, abortion should not be delayed further.
2. Renal Disease.—Especially interstitial nephritis, where a milk diet does not decerase the albumen.
3. Pulmonary Disease.—When advanced.
4. Cardiac Trouble.—Only when the dilatation is not compensated by the physiological hypertrophy of pregnancy.
5. Chorea.—In extreme instances; in hope of benefiting the conditions; to prevent insanity.
6. Pelvic Deformity.—That will not now excuse the induction of premature delivery, unless the mother positively rejects a Cæsarean section.
7. Cancer of the Uterus.—Only when too far gone to wait for viability, or the woman refuses the Porro.

Uncontrollable hemorrhage is not an absolute indication unless it is late enough to indicate placenta previa. Many women lose enormous quantities of blood in a threatened abortion, appear moribund from exsanguination and yet rally and go on to term under appropriate treatment. Consultation with at least two practitioners will commend itself to the wisdom of all prudent men.

Mode of Induction.

No physician of any scientific atttainment whatever would consider for a moment the employment of drugs. The sound is a stupid and barbarous way. It kills the fetus surely enough, but "it is left to rot in its shroud." The tent can only be a honey-comb for bacterial multiplication. The safe and scientic way is the method of Thomas: Under aseptic precautions, and with the patient under ether, the cervix is forcibly dilated and a glass stem introduced and packed tightly with a vaginal tamponade of gauze. In a few hours the resulting contractions will throw the fetal shell off. Should it fail to do this, or if the surgeon prefers and is sure of his asepsis, he may remove the entire product with the curet and fingers, as described for incomplete abortion.

Criminal Abortion.

When we consider its great prevalence, its alarming and steady increase in all grades of society, its hurtful influence on health, happiness and morality, and the deleterious effect upon posterity, this becomes a matter of the most insistent importance. It has been asserted that more lives are annually sacrificed by the unnecessary and intentional destruction of the human fetus than are saved by quarantine, drainage, sewerage, vaccination and antiseptics combined!

The "Report of the Special Committee on Criminal Abortions," appointed by the Michigan State Board of Health, calculates, as the result of its investigations, seventeen abortions come to the knowledge of the profession to every 100 pregnancies. Estimating as many more that do not come to light they compute 34 per cent., or one-third of all cases ending in miscarriage. They further report that in the United States fully 100,000 criminal abortions occur annually, and over 6,000 women die from the immediate effects. This pernicious practice has been the curse of all times, and one of the most potent agencies in the fall of many civilizations. It is fearful to think of the countless millions of unborn human beings who have thus been slaughtered—many of whom might have been of priceless benefit to society. Much of this wholesale and cowardly murder of innocent and unprotected children has been done viciously, but more has been done ignorantly through misconception of the nature of the crime and recklessiy through misinformation about its deleterious and multitudinous consequences.

The uncertainty of the law relative to the heinousness of the crime as regards an arbitrary period of quickening, and the convenient or actual ignorance of the mother of the fact that "life" exists the moment conception occurs, and to destroy the spark is actually and truly murder as to brain, or strangle the babe after it is born into the world.

It has been said that from 75 to 90 per cent. of criminal abortions occur in married women. Yet she has infinitely less justification than the deceived, forsaken and frenzied girl who risks any hazard to get rid of the evidence of her shame! Many good and exemplary women do not believe they are doing wrong to have an abortion procured before quickening. They are prompted to this from motives of ease, distaste for maternity, the specious plea of having already enough children, inability to care for and educate them. They are further actuated to this unnatural crime by the flagrant and flamboyant advertisements of abortion nostrums in the secular and I regret to say, religious press, which are vaunted to "correct all suppressions of the menstrual function." They contain explicit directions to pregnant women to be sure to carefully abstain from their use on account of their certainty to produce abortion, and deluded and disappointed in the efficacy of the vaunted remedies the desperate girl or demon-possessed woman is spurred on to greater wrong. Here is the harvest of the bloody-handed abortionist. He is here in our midst. We all know him. Abortionists are ubiquitous in every town and village, infesting every city, and holding membership in many medical societies. They are daily plotting with unfortunate and unwomanly women for the brutal and unjustifiable murder of their unborn babes, but never a one was hung and scarcely a one convicted. They are, however, not the only ones appealed to. A writer in the *Medico-Legal Journal* says: "Every man who undertakes the practice of medicine is met upon the threshold of his career by one of the most powerful, baneful, damning combinations of temptation that can possibly assail the human heart. All that is good, all that is evil within him, is subjected to the utmost pressure that can be brought to bear by the combined influences of pity, sympathy, and sometimes greed. Youth and beauty on bended knee, with clasped hands and streaming eyes, implores him with more devoted earnestness of purpose, with more burning reality of feeling than that which it approaches the throne of grace."

This is, indeed, a stirring and saddening experience. No self-respecting man, with the courage to do his simple duty and the rectitude to decline to do murder, can dare to swerve from what he knows to be right. "I will give no deadly medicine to any one if asked, nor suggest any such course, nor will I conspire with a woman to destroy her unborn child," declares our Hippocratic oath. But I conceive we can be of immense assistance to the poor unfortunates who thus apply to us. We can save many half-crazed young women from taking this desperate step by a vigorous recital of its perils, and an appeal to her love of self-protection to find some other way out of the dilemma. One end of the horn may be the muzzle of a shotgun and the other a lying-in retreat. We can peremptorily dissuade a misguided married woman who prays for relief of her burden, because she cannot suffer another child, by asking her why she does not implore us to kill one of her other children instead of the innocent babe in her womb, and by telling her the crime is equally as great and would be much safer for her own life and health.

This subject has always been one of vast solicitude to the profession. When the American Medical Association met in this city in 1857, a strong committee was appointed to report upon criminal abortion with a view to its general suppression. Later the association published a prize essay by H. R. Storer, of Boston, entitled "Why Not? or, a Book for Every Woman," in which the wickedness of the crime was set forth and condemned, and its harmful effect and dangers explained. This did great good, but we need another Moses to lead us out of the wilderness of crime.

The cause of humanity is somewhat protected by the fact that any man who will commit an abortion cannot, as a rule, do it with safety. Out of 116 cases of criminal abortion, collected by Tardieu in Paris, 60 died outright and many had a lingering convalescence. If there were no other functions for a Bureau of Public Health in this country than the stamping out of the criminal abortionist, the increased population and future prosperity of the United States would amply justify its creation. We have a Bureau of Animal Industry for the prevention of disease among cattle and the detection of trichinosis in pork, yet there is not a law that is operative in the prevention of the wanton and wholesale slaughter of these human beings. Our nation has just concluded a relentless war at an enormous expenditure of money and the cost of many valuable lives to avenge the cowardly murder of 256 sailors. The tremendous daily output of abortion-mongers outnumber many times over the unfortunate victims in the Maine disaster, and yet there is not a voice of official protestation raised at this unholy warfare.

TREATMENT OF HEMOPTYSIS.

Dr. Harrington Sainsbury's views on the treatment of hemoptysis are briefly given in *Treatment* (No. 3, Part III, April 4, 1898). In tuberculosis there may be no physical signs, and yet oozing occurs from small vessels with military aneurisms. This initial hæmorrhage may be profuse enough to cause death, even when no ulceration nor consolidation exists, but usually when the hæmorrhage is large, under these circumstances (absence of signs) ulceration is present; all the more when the signs also are present (consolidation, shrinkage, cavitation). Sudden copious hæmorrhage in a case of phthisis of long standing with localized lesion indicates aneurismal dilatation in a vessel of considerable size.

As the bleeding point is not accessible, treatment is limited to reduction of blood-pressure and improvement of blood. To accomplish the former, give the patient a recumbent posture with head and shoulders comfortably raised after the patient has been calmed from the excitement consequent on the accident. The patient should be carried to the bed; not allowed to walk there. Matter-of-fact attention must be given to details, without hurry or excitement by nurse. Patient must not talk, nor raise the voice. The attendants must not whisper. Give broken ice to suck. Treat cough with morphia (1-10 grn. upwards). Keep bowels open to avoid increased blood-pressure. Keep room cool and well ventilated. Give bland and unstimulating nourishment, milk especially. Apply bag or hot flannels to chest to quiet circulation in mucous membrane of bronchial tubes, as occasion requires. Give chloride of calcium in doses varying from 8 to 16 grn., repeated pro re nata.

FOREIGN BODIES IN THE EYE.[1]

By HARRY L. MYERS, M.D., Norfolk, Va.

My subject was not selected with the aspiration of presenting any new phase in the management of these accidents, but with the intention of bringing before you a subject of practical interest, and to ask your cooperation in condemning the loose and unscientific management of these most important cases, which, I regret to say, is but too frequent among some members of the profession to-day.

To those less familiar with the subject, I hope to be able to impart some useful hints, and to this purpose I have thought it best to consider my subject under the following divisions: (1) Foreign bodies upon the ball or within the substance, though not entirely perforating its coat; (2) Foreign bodies in the interior of ball.

The violence of the irritation attendant upon the lodgment of a foreign body under the lids depends upon the nature of the substance, whether chemical or mechanical, the the contour, and the position which the body assumes on or after coming in contact with the eye. Subjectively, we can often judge very little of its size, as the violence of the symptoms is often disproportionate to the size of the body—indeed, so small is the object many times that it is scarcely or not at all visible to the naked eye of the observer. Thus, not a few patients have been dismissed with the assurance than the eye is free of any foreign substance, and, continuing to suffer from the mechanical irritation—or, worse yet, by the resulting inflammation—have sought another physician who, by the use of the proper technique, was enabled to locate and remove the offending substance, greatly to the patient's comfort and equally to his disgust of the skill of the physician who failed to find what seemed to him to be of sufficient size to be visible at ten feet.

---

[1] Read before the Medical Society of Virginia, during its Twenty-ninth Annual Session, at Virginia Beach, Va.

Substances like grains of sand, cinders, particles of dust, etc., generally give rise to very little discomfort if they remain fixed in the upper or lower cul-de-sac of the lids. It is only when they become loosened from these positions, and are dragged across the exquisitely sensitive surface of the cornea, or become fixed in its surface, that they give rise to excessive pain, accompanied by lachrymation and shortly by more or less severe inflammation. In case the body is smooth and rounded in contour, it is often so little noticed that it remains in the cul-de-sac unmolested until it has in many cases become encysted. Many such cases are recorded, and sometimes very peculiar substances thus encysted remain quiescent for years, and then set up an inflammation which brought about an investigation and their removal.

That the most common foreign bodies, which give rise to no more than ordinary symptoms, are frequently regarded by the profession in general as too trivial accidents to demand more than the most casual attention is the experience of every oculist; and, unclassical as my paper may be, if it suceeds in impressing the importance of a closer attention to details in the seemingly trivial cases of this nature, it will have been worthy of merit.

If the momentum of the body on striking the eye be sufficient to cause it to be buried in the substance of the cornea, or if it is heated, or because of its chemical nature it becomes adherent to or alters the nature of the tissue of the cornea, we have a condition of affairs that, however slight the symptoms appear, carries with it the danger of doing serious, if not irreparable, damage to the eye.

Not underestimating the effect upon the sight of the traumatic action of a flying foreign body which might abrade the surface to the extent of producing an incurable opacity, we know that there is frequently a far more dangerous element to be considered than mere trauma—that of infection. This is the element of danger above all others upon which we must concentrate our attention, an element which, if controlled, would render the majority of these accidents of far less importance and permit of much less attention to the details of treatment.

The most common foreign bodies which come to us are bits of cinder, steel, emery, etc.; these being hot, burn their way into the protecting membrance of the cornea, and often penetrate deeply the substance, oxidizing and destroying the tissue in their wake. They thus produce a wound which, aside from its mechanically injurious nature, is also an exceedingly good field for infection; in other words, in these cases the infection is probably indirectly produced.

Besides the hot bodies which are more likely to be aseptic in themselves, there is another class which carries the infection directly, and is capable of producing an infected ulcer which may resist the most careful treatment, and thus not only endanger one eye, but both.

Chemical substances entering the eye act by corroding the tissues, and unfortunately we seldom see these cases until the damage is done; but even then much may be accomplished by proper cleansing and the maintenance of strict asepsis. Lime should be removed with oil instead of water, and it might be well, in case of acids, to combine some neutralizer to the watery solution used in cleansing. The caustic alkalies should be removed with milk instead of water. If two opposing surfaces between the lids have been burned, there is danger of symblepharon, and, besides keeping the insides of the lids well lubricated with an oily substance, the lids should be frequently pulled apart by the fingers to prevent the surfaces from adhering.

In concluding the first section of my paper, I will mention briefly my own method of dealing with these cases, other than those due to chemical causes which have been before mentioned, hoping that, to those less familiar with the technique, I may be able to impart some useful hints.

In the first place, we cannot condemn too strongly the dirty practice of picking pieces of steel, etc., from the cornea with a dirty toothpick, needle, or pen-knife, which practice is common among factory employees, and, I am sorry to say, is not altogether unknown among some of the profession. I venture the assertion that there isn't an oculist present who hasn't been confronted with the worst cases of infected ulcers from this filthy practice in the hands of some careless person.

A good method of examining an eye supposed to contain a foreign body is as follows: The patient is seated in a comfortable chair, with head-rest, by a table upon which is a lamp with a good flame. He doesn't face the light, but sits with the corresponding side of his face to the light upon which the affected eye is. The lower and upper lids are successively everted and a careful search is made for any loose body; if any is found, it can be easily removed with a pledget of cotton held loosely in the hand, the pledget having been previously dampened in a mild solution of bichloride. The lids having been restored to their natural position, the cornea is next examined for any small particles which might be adherent to it. This can only be done properly by concentrating the ray of light from the lamp transversely across the surface of the cornea by means of an ordinary magnifying glass held at its focal distance from the eye. Added to this, much assistance can be gained by placing to the observer's eye an ordinary watchmaker's magnifying glass. The patient pulls down the lower lid, the observer using the unoccupied hand for the upper. Having located the body on or in the tissues of the cornea, the next step is to direct the patient to close the lids, when the outer surfaces are thoroughly cleansed with a weak solution of bichloride, after which a few drops of a 10 per cent. solution cocaine muriate are dropped in the lower cul-de-sac. After a few minutes have elapsed sufficient to allow the cocaine to take effect, the eye is douched out with a saturated solution of boric acid, and a few more drops of cocaine instilled.

In the absence of an assistant, the patient is now required to pull apart both lids and directed to fix and maintain his gaze on some point selected by the surgeon. The lens then is held in one hand, concentrating the ray on the body, and with the other hand the surgeon gently picks away the foreign body by means of a thoroughly aseptic instrument, which, for additional safety, has been dipped in a bichloride solution of one to two thousand immediately before it is used.

After the body is removed, the surface upon which it has rested should be gently curetted so as to remove any possible source of infection. This latter procedure is particularly necessary where the foreign body has been hot—if iron, the thin layer of brown iron rust, which always lies under and around the body, should be entirely removed by the curette.

The eye is again washed out with a saturated solution of boric acid, and the patient directed to apply cold applications to the closed lids for several hours. If the abraded surface is at all large, a bandage should be worn for twenty-four hours.

In this manner, almost without exception, further trouble is prevented.

The thorough consideration of the subject of foreign bodies in the interior of the eye as a result of trauma is manifestly impossible in an article of this kind, and I speak of them very briefly. When a foreign body has penetrated within the enclosing coats of the eye ball, we are brought face to face with one of the most serious accidents in surgery. It is the rule rather than the exception that such eyes are lost, unless the foreign body can be removed. This is especially true if the point of entrance is situated in what is known as the "dangerous zone," an area extending one-quarter of an inch backward around the entire circumference of the cornea. That wounds in this area are more dangerous is due to the fact that the ciliary body underlies this zone, and, on account of its structure and function, a wound in this region will most likely produce an inflammation, which is kept active by the almost ceaseless action of the ciliary muscle during accommodation. The constant irritation from the dragging of the wound by the ciliary muscle quickly produces irido-cyclitis, and when this becomes thoroughly established, not only is the injured eye in danger of destruction, but also the uninjured one by sympathetic involvement. A penetrating injury of the eye is of such grave significance that its treatment should be placed in the hands of an expert surgeon as soon as possible. As this isn't always possible at once, I shall speak very briefly of what should be done until special skill can be obtained. The main thing to be observed here, as in the first class of cases, is prevention of infection. It is even more necessary to be particular in this class than the first. After washing the closed lids very carefully in soap and water, and then in a bichloride solution, the eye should be carefully examined to locate the wound. If there is a prolapse of vitreous in the mouth of the wound, or a prolapse of iris through the cornea, these should be gently removed with aseptic scissors, under proper antiseptic precautions, as mentioned above. A wound through the sclera, from which vitreous is escaping, should be united with sutures put through the conjunction overlying it, or, if the wound is very large, through the sclera itself. And let me again emphasize the necessity of the strictest cleanliness here, as the vitreous humor is one of the best cultivating mediums for infectious germs that we know of. If the foreign body has penetrated the anterior chamber and wounded the lens, traumatic cataract will be produced, and must be carefully watched; and if the lens is much wounded, it would be better to remove it at the same time as the opening of the anterior chamber to remove the foreign body.

Pieces of steel in the eye can sometimes be removed by means of the electro magnet. I note with much pleasure that Dr. Joseph A. White has several such cases to report, hence I leave the dscription of this procedure to more worthy hands than mine.

After all has been done in the effort to remove the body, whether successful or not, the eye should be washed out with a saturated solution of boric acid, a few drops of a one per cent. solution of atropia instilled, and cold applications applied until the inflammation either subsides or shows evidence of plastic iridocyclitis, when the eye should be at once enucleated to prevent the occurrence of sympathetic ophthalmia in its fellow.

THE NEW FIELD FOR THE PRODUCTION OF DIGESTIVE FERMENTS BY THE MICROSCOPICAL PLANTS.[1]

By JOKICHI TAKAMINE, PH.D., Detroit, Mich.

I feel highly honored to be called upon to address you this evening, and it gives me great pleasure to talk on the subject to which I have devoted my attention for the last ten or twelve years, namely, "The New Field for the Production of Digestive Ferments by the Microscopical Plants." As you are aware, the microscopical science has made wonderful progress within recent years, but you will observe the direction of study was directed to the investigation of the injurious bacteria, namely, how to avoid or how to overcome their attack on the human system.

We were in the passive condition corresponding with that of the Spaniards in their last struggle. We know very little of useful microbes. It is about time now that we should take an active position, as you did in Cuba and Manila; harness these microbes and utilize them for the enhancement of human happiness, rather than being annoyed by these almost infinitesimal creatures. Since the opening of Japan by your famous Commodore Perry in 1852 to the commerce of the world, Japan has made a remarkable stride in all branches of science and their applications, and is still trying to keep up the pace with the leading nations of the world. All these wonderful changes have occurred since my boyhood, and I have vivid recollections of every important step taken in my little country.

The present Emperor sent out many promising men to all parts of the world to study different branches of useful arts and sciences, and many of my countrymen were educated in this country, and we owe a great deal to this country for its warm friendship as well as kind leader-ship. Not only the military and naval science with which we have shown what we can do in the late China-Japanese war, but we are at least trying to do something in the direction of modern science.

---

[1] A Lecture Delivered by Dr. Jokichi Takamine, before the Alumni Association of the Brooklyn College of Pharmacy, October 19, 1898.

You are probably familiar with what Prof. Kitasato has done in the way of production of diphtheritic antitoxins at about the same time as Prof. Behring has been working, to whom this Government has recently given a patent for the production of diphtheritic antitoxin, which is now drawing the attention of the medical men. I have been recently informed that Dr. Ogata, Professor of Bacteriology in the Medical College of Imperial University of Tokio, has anticipated the Behring invention of 1890 by about five years.

As a tail of such investigators, I may be permitted to come in as one who has done some work in harnessing and utilizing a certain microscopic plant for the production of various articles, which are useful in our welfare, namely, the production of a digestive ferment, to which I desire to draw your attention briefly this evening.

There are two kinds of field for the production of digestive ferments; one is of vegetable origin and the other is of animal origin. The principal digestive ferments required for supplying the deficiency in our system are of three kinds, namely, starch digestant, albuminoid or proteid digestant and fat digestant. Of these the first, starch digestant, is the most important, from the fact that more than two-thirds of our food consists of starch food, and secondly, the starch converting ferments are used in immense quantities in different manufacturing industries and are chiefly obtained from vegetable source.

The second, albuminoid or neat digestive ferment, is obtained from animal origin, from the various glands of the intestines of pigs, under the name of pepsin. In this branch I desire to draw your attention to a new field in which these digestive ferments are obtained from vegetable origin, and I will dwell on these two points this evening.

Starch Digestant or Diastase.

The germination of cereals has been the only source of diastase of any practical importance known in America and Europe, and constitutes an enormous industry, namely, the manufacture of malt and its products. The most extensive use of diastase is in the production of alcoholic beverages from various cereals, and the process consists of two stages, namely, the conversion of starch contained in these cereals into sugars by the agency of diastase, and the conversion of sugar thus formed into alcohol by the agency of yeast or alcoholic ferment. In Japan, and probably in some other Asiatic countries, certain kinds of microscopical plants belonging to a species of fungus, are used in the production of diastatic substances, in place of malt used in this country.

The fungus used in Japan is known as Taki-Koji, and has been termed Eurotium Oryzae. It belongs to the genus Aspergillis, and is distinguished from ordinary fungus by its remarkable power of generating the diastatic ferments during its growth. My investigation shows that there are various kinds of fungus to a greater or lesser extent. A certain desired species is isolated and purified by a method similar to that used in bacteriological investigations, and when isolated it is propagated and nursed to its fullest extent, by cultivating it on suitable nourishing substances, which is previously thoroughly sterilized and well fertilized with necessary mineral ingredients. The culture media mixed with these spores is now put into an incubator or growing room of the proper temperature and humidity. In about 30 hours the fungi show their growth and at the end of from five to seven days the plant reaches its maturity, acquiring a velvety appearance, the color differing according to the species of fungus used. The growth is now carefully dried and the spores of the fungus may be separated from it and preserved in an isolated condition as seed spores for further propagation.

In order to manufacture a diastatic substance for practical use, wheat bran is found to be a very good culture media. The bran is first moistened with the proper amount of water, and then sterilized thoroughly by passing live steam through it. After cooling down the mass to the temperature of the body, a small quantity of matured spores are added and thoroughly mixed. The mass is spread into a layer in the growing room similar to that of a malt floor. The temperature is kept about 80°, and the humidity at about 90 per cent. In about 30 hours the fungus shows its growth and the temperature of the mass rises.

The diastatic strength of the mass will steadily increase as the growth advances, and at the end of about 50 hours the curve of the diastatic power reaches its maximum, when it is taken out of the growing room and cooled down to an ordinary temperature. Such a mass is called Taka-Koji, and forms the base for the manufacture of various diastatic products. The diastase generated in the mass being soluble in water, it can easily be extracted by simply percolation with water. The extract thus obtained can be used in the manufacture of alcohol, beer and other beverages.

The aqueous extract can still be purified by precipitating this diastatic principal by the addition of strong alcohol. For this purpose, if an extract containing about 20 per cent. of soluble matter is treated with three or four times its own weight of strong alcohol, the diastatic ferments will precipitate while other non-diastatic ingredients, such as sugar, coloring and mineral matter remain in the solution. The precipitate is now decanted, filtered, pressed and air-dried. The product thus obtained is called Taka-Diastase, and is a yellowish-white, odorless powder possessing a nutty taste. It is readily soluble in water, yet non-hydroscopic. It is perfectly stable in its diastatic power. It converts in 30 minutes over three hundred times its own weight of dry starch into sugar, or over 2,000 times its own weight of cooked starch food in thirty minutes.

The applications of Taka-Diastase are varied and extensive. Among other things, its use as a remedy for anylaceous dyspepsia is of no mean importance.

Considering the fact that more than two-thirds of our food consists of starch substances, such as potato, bread, pudding, etc., and also that the diastase of saliva has to perform the principal function in the digestion of starchy food, and that the saliva is subjected to loss and deterioration of its diastatic power from various causes, such as smoking, drinking, chewing and rapid eating, it is not to be wondered at that two-thirds of the dyspepsia is of starchy origin; therefore, it is apparent that some kind of strong diastatic substance is required to supply the deficiency of the digestive organs.

Albuminoid Digesting Ferment of Vegetable Origin.

My investigation in the way of growth of different fungi has shown that not only is it capable of generating the diastase, but also other digestive ferments. I have now before you a micro-photograph of the fungus which has remarkable strong power of generating meat-digesting ferment or pepsin. My work in this line has not yet reached the point where I could produce isolated plant pepsin as strong as animal pepsins on the market, but by careful and patient study in the selection of different kinds of fungi, I believe in time one will be found which will supersede animal pepsin, both in point of proteolytic strength as well as purity.

As I stated before, we have to depend upon slaughter-houses for the digestive ferment from animal sources and we have no guarantee that the animals from which the ferments are obtained are free from bacteriological diseases, while in this case the character of the spores can be made pure, and such pure spore is propagated on thoroughly sterilized material under the best-known methods and possible care, thus insuring the sterile nature of the ferment obtained. I am confident this new field will give us all kinds of digestive ferments that we need in sterile condition, and as pure as you want; also, that it will supersede in the future the old known source of obtaining digestive ferments, namely, the germination of cereals as well as the extraction of digestive ferments from the intestines of different animals. At any rate, I thought it worth while to invite your attention to the investigation of this important new field.

CARE OF THE EARS IN EARLY LIFE.*

By D. C. BRYANT, M.D., Omaha, Neb.

The anatomical conditions about the ear and neighboring regions are so different in early life from those existing later on, and the results occurring from diseases of the ear at this age are so liable to shut the patient out from future usefulness in nearly all the affairs of life, that it seems proper that this subject should receive more than ordinary attention, especially from the general practitioner. It is probably true that the present generation, in this country, has a smaller per cent. of individuals incapaciated for following the ordinary pursuits of life on account of loss of hearing, dating from an early age, than generations before us. This, no doubt, is due to the fact that the physicians of to-day are better posted in regard to aural diseases and take a more lively interest in preventive treatment than did our predecessors. It is to be hoped that the coming generation will be still more fortunate, as there is yet room for vast improvement in the care of ears, both in health and disease, in early life. No time will be spent in this paper discussing the care of the external ear, as rarely at this age do we meet with serious diseases of the external ear, threatening either the loss of hearing or of life. In the middle ear, on the contrary, we expect to, and do, find the most frequent and the most serious troubles.

In the first few years of life the morphological relations of the child's organism favor the occurrence of diseases in the middle ear more than at any later period; and even in adults diseases of the middle ear are the most frequent and the most important. It must be remembered that in early life the anatomy of the middle ear has not reached the perfection it does reach later on, the bony roof of the tympanum is not well developed, leaving an intimate connection between the lining of the middle ear and the dura mater, so that hyperemias and inflammation of one can easily extend to the other; so that in early life we frequently see a meningitis causing an otitis media, or an inflammation of the middle ear causing a meningitis. That this reciprocal influence may be recognized, not only anatomically, but also clinically, is known to every one who has practised medicine any length of time. Many of the cases of meningitis in children sooner or later develop otitis media, while some of the cases of suppurative otitis light up a similar process in the meninges of the brain. The close connection between the middle ear and the naso-pharnyx is a source of even more danger in the child than in the adult, for in early life the mucuous membrane in this region seems richer in blood vessels and various glands than in later life. This is especially noticeable in that conglomeration of lymphoid glands called Luscha's tonsil, which is very prone to hypertrophy in early life, reaching its greatest size in childhood and gradually shrinking and diminishing in size so that it has disappeared by the time the patient has reached manhood or womanhood. The throat tonsil we find also following the same course, though the atrophic process is not so early or so strongly marked as with Luscha's tonsil. Added to the above conditions comes the great liability in childhood of contracting certain diseases, such as coryza, scarlet fever, measles, diphtheria, whooping cough, etc., all of which increase the congestion and secreting power of the mucuous membrane of this entire region, converting it into a first-class hot-bed for the cultivation of certain forms of bacteria. No infection of the middle ear may take place in many of these cases, but the conjestion and swelling at the mouth of the Eustachian tubes may completely close them, shutting out the ingress of air to the middle ear. Not much time can elapse under these conditions before, the air in the middle ear being partly or wholly absorbed, a vacuum is formed in that chamber. There not being the normal volume of air in the middle ear to balance the pressure, by the external air, on the drumhead, that membrane is pushed in and in turn exerts undue pressure on the chain of ossicles which impart this surplus force through the oval window to the internal ear. The absorption of the air in the tympanum removes the normal support from the blood vessels in mucous membrane lining that cavity, which immediately become distended with blood, the mucous membrane itself becomes swollen, and an effusion of serum and mucus, or serum alone, takes place in the middle ear. The pathological changes may stop there, if the cause is removed soon enough, the effusion be absorbed, and everything return to a normal condition, or they may go on to the stage of inflammation, either suppurative or non-suppurative, either of which may practically destroy the sound-conducting power of the ear, and may, and does, in a certain per cent. of cases, extend to the internal ear, destroying the sound-receiving portion of that organ, producing absolute deafness.

---

* Read before the Nebraska State Medical Society. Omaha, June 14, 16, 1898.

In considering the air supply of the middle ear the Eustachian tube should be thought of as only a small part of the air-shaft, as it might properly be called, which supplies this air. The nose and pharnyx are both directly connected with this office. Any obstruction in the nose which prevents the partial breathing through that organ turns the current of air away from its normal course past the mouth of the Eustachian tube, thus interfering with the normal ventilation of the middle ear. Obstructions in the nose in front of the mouth of the Eustachian tube not only interfere with the passage of fresh air to the ear, but, in the act of swallowing, by suction power, remove what is already present there. The constant irritation from mouth breathing often starts up a pharyngitis, which, extending to the naso-pharnyx, may increase the swelling about the mouth of the Eustachian tube. Enlarged pharyngeal tonsils may do the same thing. Without entering further into the causes producing the great frequency of disease of the middle ear in early life it may be asserted that the frequency is a fact, admitted by all authors and proven by all statistics. Now, can we as physicians, by teaching the laity the importance of the proper care of the ears of their children, prevent the occurrence of a large per cent. of this trouble, and, by proper care and proper treatment, prevent or remove the bad results which often follow in these cases, continuing through life, more or less seriously interfering with the happiness and usefulness of the individual? The answer should be most decidedly in the affirmative. The starting point of all this missionary work is for us, ourselves, as general practitioners, to acquire a realizing sense of the full importance a perfect ear is to the individual. When harassed by other, apparently more serious, cases where life itself is in jeopardy the average physician is not liable to consider very seriously a case of catarrhal inflammation of the middle ear, and yet the neglect of such a case may cripple the whole life-work of the unfortunate patient.

Beginning with hygiene, too much stress cannot be laid upon the necessity of the little ones having proper hygienic surroundings from infancy to early adult life. The inhalation of impure air has a more deleterious effect upon the mucous membrane lining the nose and throat, and indirectly on that lining the middle ear, at this time than later in life. Crowded nurseries, poorly ventilated living, sleeping, and school rooms should be avoided. So-called colds and coryzas should not be neglected, but receive immediate and prompt attention. Anything which interferes with the lining of the nasal passages should receive immediate attention. Hypertrophies, polypi, so-called adenoid growths should be removed, deflected septums corrected, and in fact anything that interferes with the proper ventilation and drainage of the nasal passages should be immediately remedied. Parents should be taught to observe their children, both while asleep and awake, and notice whether they breathe with their lips closed or open. They should also be taught that if their children are mouth-breathers there is something radically wrong which needs immediate correction. In a great majority of mouth-breathing children will be found adenoid growths in the naso-pharnyx, and there is no one thing in the whole category of causes that produces as much trouble as this in children, and I know nothing in the whole field of medicine or surgery that is as sure of preventing and removing trouble as the removal of these growths. Whatever the cause is that prevents free breathing through the nose, it should be removed or corrected if possible without waiting for the development of ear trouble. If this is done before an inflammation of the ear has begun, the treatment will be preventive on the one hand and improve the general health of the child on the other. An otitis media in a child, whether suppurative or non-suppurative, acute or chronic, should never be lost sight of until the disease has been removed and hearing brought up to the highest possible point of acuteness, and the parents should be taught to test the hearing occasionally and warned of the necessity of immediate attention should the hearing fall much below that at the time the patient was discharged. Perhaps there is greater danger to the future usefulness of the ear in the case of non-suppurative inflammations where there is a gradual loss of hearing and little or no pain. Here there is no discharge to alarm the parents, and oftentimes little or nothing is done except "to wait for the child to outgrow it" until hearing is reduced to a point below that required to understand ordinary conversation. Fortunately the indirect process of changing normal and useful tissue into abnormal and useless tissue is slow in non-suppurative varieties of otitis, and good results can be obtained by proper treatment even rather late in the disease. With suppurative varieties the destruction of tissues is direct and much more rapid, and requires, and usually receives, much more prompt and energetic attention than the former variety, and yet many cases are left to Nature's care both by the physician and the parents. These cases should all be treated until the discharge has ceased, the drum membrane repaired or reproduced, where this is possible, and the hearing brought to a point as nearly perfect as possible. In early life in all of the exanthemata, in influenzas, including grippe, in meningitis, in whooping cough, etc., the ear should receive careful inspection and attention from the attending physician, both in the way of preventive and curative treatment.

To sum up briefly, then, the care of the ear in early life means the care of the nasal passages and the pharynx, as well as the ear itself. Beginning with the infant, care should be taken that the nose be clear for breathing purposes before nursing is allowed. Pure air and hygienic surroundings are as necessary for the health of the mucous membrane lining the throat, nose and ear as for the general health. It is absolutely necessary for the preservation of the ear in normal condition that perfect ventilation and drainage of the nasal passages be maintained, and any new growths, hypertrophies, or deformities should be immediately removed. In all of the diseases peculiar to early life prone to affect the mucous tract extending through nose, throat and middle ear, the latter should be carefully watched and receive proper attention and treatment as soon as any symptoms of implication of that organ become manifest.

THE VALUE OF HYDROCHLORIC ACID IN SCIATICA.

A somewhat remarkable instance is recounted in the *Semaine Medicale* of a patient having arrived at the successful method of treatment for himself by the merest accident—an accident, too, which was founded on a blundering ignorance of chemistry. A man who had suffered for many years from sciatica was treated in an Algerian hospital by means of hypodermic injections of salt and water, but without much success. After he had left he bethought him that perhaps the salt was not strong enough, and that a stronger preparation of salt might be more successful. He therefore procured some "spirit of salt" (hydrochloric acid) and painted it on the skin, getting rid of his long-standing trouble in a few days. Having occasion, shortly afterward, to attend the hospital for some other affection, he confided in Dr. Bourlier, professor of therapeutics, whom he saw, how he had managed to get rid of his sciatica. The gentleman thought the plan worthy of trial, and employed it in several cases with invariable success. A thesis has recently been published on the subject by Dr. C. Gennatas, of Montpelier, on the basis of a dozen cases of neuralgia of the sciatic nerve, all of which were completely relieved by this means. The procedure is simple. Half an ounce of strong hydrochloric acid is put in a small cup, and applied with a brush over the painful part of the nerve, three or four coats being painted on. The limb is then enveloped in a cotton-wool dressing. The application causes a somewhat severe smarting sensation, but this is quite bearable. A few minutes afterward the skin becomes reddened and hot, and sometimes bullae are formed, which fill with fluid. These, even if they occur, disappear in two or three days. Usually the patient feels better even after a single sitting. The application can be repeated in from twenty-four to forty-eight hours, but not again for several days for fear of producing sloughs. Where there are bullae they must be avoided in subsequent applications. No serious inconvenience is caused by the hydrochloric acid such as was experienced when a similar procedure was attempted some years ago by Dr. Legroux with strong sulphuric acid, which was found to be liable to cause extensive sloughing of the skin. The patients referred to were all reported as cured in from three to five sittings, extending over from a week to twenty-five days.

THE TREATMENT OF PUERPERAL SEPSIS.

Dr. Paul Mundé's Presidential Address to the American Gynæcological Association on Puerperal Sepsis is of value, not because it contains anything very novel, but because it is a statement of the practice of an experienced authority. He observes that for the formation of a correct diagnosis the genital organs should be digitally examined; first for lesions of the external organs, the vagina, and cervix; then to determine whether the uterus is empty or whether it contains some septic focus—portions of placenta, membranes, or coagula, or whether the endometrium presents the peculiar, spongy, thickened, and furrowed feel of puerperal septic endometritis. If thought advisable, a specular examination may be made of the vagina and cervix, which may reveal lacerations presenting a yellow or brownish gangrenous appearance.

All substances which may be a source of infection should be removed from the endometrium, either with the finger or with the large long blunt curette which the speaker had made sixteen years ago. When emptied the uterus should be irrigated with a mild solution of permanganate of potassium, or, if the substances removed are offensive, with Marchand's solution of peroxide of hydrogen diluted one-half. He seldom employs perchloride of mercury, and never stronger than 1 in 10,000. He does not approve of iodoform pencils; they simply mask the odor and character of the discharges. But he has seen good results from packing the endometrium with iodoform gauze to induce contraction of the uterus. In bad cases of septic endometritis with a great deal of inflammatory hypertrophy of the uterine wall, he is not in favor of using the curette, either dull or sharp. He only uses the sharp curette to the puerperal endometrium when he fails to remove the substance which produces the sepsis. Curetting of a septic endometrium does more harm than good; it opens fresh channels for infection. It is far better to apply a solution of chloride of zinc (20 to 30 per cent.), or pure tincture of iodine, or iodized phenol through a cylindrical speculum, and then to wash away loose débris with sterilized water, and pack the cavity with iodoform gauze for forty-eight hours or longer, provided there is no chill or rise of temperature. Intrauterine irrigation will then be necessary for some days. If the uterus is entirely empty, and if there is nothing in it that can produce sepsis, even though there be high temperature and pulse, it is useless (as is often done) to continue irrigation. Infected vaginal or perineal wounds should be touched with a saturated solution of permanganate of potassium, or a 25 per cent. solution of chloride of zinc.

Medicinal treatment is unsatisfactory. Large doses of quinine only influence the temperature momentarily; they have no influence on septic germs. The coal tar derivatives—antipyrin, phenacetin, etc.—reduce temperature only temporarily, and are beneficial only in rendering the patient for the time more comfortable. But they mask the fever and depress the heart. The influence on the heart may be combated by caffein. Dr. Mundé gives phenacetin in 3 to 5-grain doses, combined with caffein. He recommends anti-streptococcic serum, having used it in three desperate cases which failed to respond to other treatment. From three to six injections were given at intervals of from four to twelve hours.

OXYGEN IN MORPHINE POISONING.—David Playfair, M.D., C.M. (*The Lancet*, Aug. 27.) A healthy woman, aged thirty-seven, took about 30 grains of acetate of morphia. Toxic symptoms were well marked. The stomach was washed out and atropine and strychnine were injected hypodermically. Respiration stopped and was continued artificially. Cyanosis became intense and the pulse exceedingly feeble. The inhalation of oxygen was commenced, the cyanosis became much less marked, and the pulse stronger. After about five and a half hours of artificial respiration, the condition seemed hopeless: the pulse was getting weaker and the cyanosis became intense whenever the oxygen was stopped. Some improvement, however, set in, and she recovered. Among the remedies tried were ammonia and nitrate of amyl, but they seemed as useless as the others. Nothing was apparently of any value but oxygen. In other cases published in the *Lancet*, it has been found valuable: in one 2oz. of chlorodyne had been taken (containing about 8 grains of morphine).

FAVORITE PRESCRIPTIONS.

For Hyperhydrosis.

Dr. Heusner (*Ges. Therapie*, p. 380, 1898) recommends:

Bals. of Peru	15 gr.
Formic acid	75 gr.
Chloral hydrate	75 gr.
Alcohol	3½ oz.

In local hyperhydrosis apply this solution by means of a piece of cotton; in general hyperhydrosis apply by means of atomizer.

Tetany of Gastro-Intestinal Origin in Children.

The *Progrés Médical* for June 25 credits the following prescriptions to Tordeus:

Bismuth salicylate	4½ gr.
Benzonaphthol	2¼ gr.
Sugar	a sufficiency

M. Four such powders to be taken in twenty-four hours.

Potassium bromide	45 gr.
Chloral hydrate	15 gr.
Distilled water	1.500 gr.
Syrup of bitter orange peel	750 gr.

M. Three soupspoonfuls to be taken in a day (for a child two or three years old).

For Gall-Stones.

Dr. Blum recommends (*Cent. f. d. Ges. Therapie*, p. 442, 1898) the following:

Sodium oleate	C. P. 6¼ dr.
Glycerin Siliceous earth (Kaolin).	aa q.s. ut fit pil No. 100

S. Four pills morning and night. During an attack double the quantity may be taken.

Alveolar Abscess in Tuberculous Persons.

William Rushton (*Treatment*, July 28) remarks that in tuberculous subjects alveolar abscesses are apt to be severe, with a profuse discharge of pus. He recommends the following formula for an alkaline tooth powder, to be used after the tooth has been extracted and the abscess punctured through the gum:

Sodium carbonate (bicarbonate?)	2 dr.
Powdered white soap	1½ dr.
Precipitated chalk.............enough to make	1½ oz.
Carbolic acid	5 drops

M. An antiseptic mouth wash, such as listerine, he adds, may also be prescribed.

Dysentery of Children.

M. T. Guida (*Le Progrès Méd.*) prescribes the following suppositories:

Neutral sulphate of aluminum and potassium	gr. iii
Acetate of lead	gr. ¾
Cocoa-butter	ʒ v
Melted wax	gtt. x

Mix and make into ten suppositories. Introduce a suppository every three or four hours.

GAILLARD'S MEDICAL JOURNAL.

A MONTHLY JOURNAL OF MEDICINE AND SURGERY

Scientia et Veritas Sine Timore.

PUBLISHED BY THE NEW YORK MEDICAL PUBLISHING CO.,
106 William Street, NEW YORK.

All communications, of either business or editorial character, should be addressed to Gaillard's Medical Journal, 106 William St., New York.

Articles for publication will be received with the understanding that they are contributed exclusively to this journal. Reprints will be furnished at actual cost, orders for which should accompany the manuscript. Authors of accepted articles may receive twelve copies of the issue in which they are published. Necessary illustrations will be furnished without expense to authors when suitable drawings or photographs are furnished.

"CHRISTIAN SCIENCE."

THE death of so prominent a man as Harold Frederic, the distinguished novelist and London correspondent of the New York *Times*, under the so-called "treatment" of that set of fanatics who so misappropriately style themselves "Christian Scientists," has directed the most widespread attention to the harm which is being done by this apparently growing sect. The result of an autopsy, taken into conjunction with the observations made by the physicians who saw the patient early in his illness, indicate that had the advice of the physicians been followed and their treatment carried out, the patient would probably have recovered. This case has gone before a coroner's jury.

A somewhat similar case occurred in the death of Major Cecil Lester, instructor in military topography at the Royal Military College, Sandhurst, England. The coroner's jury in this case returned a verdict which embraced the following:

" '1. The jury express their entire satisfaction with the treatment and action of Dr. Clarke and Dr. Gillespie, throughout the entire case. 2. The jury also desire to express their sense of abhorrence at the so-called treatment of the deceased by Mrs. Grant, as representing the Christian Scientist Society in not using material means for the alleviation of his suffering.' Dr. Clarke's high repute and the close attention which he gives to his cases in the office which he has so long and so honorably held are in themselves a guarantee that no consideration or kindly thought was likely to be overlooked in the efforts made on behalf of his suffering brother officer. Fortunately, the case is not one where the skill or the treatment of the medical advisers was at any time in question. They themselves recognized the fact that, humanly speaking, recovery was well-nigh hopeless and scarcely to be expected, and they said so honestly to the anxious relatives. It is not for us to say that at this stage of apparently hopeless despair it was unnatural in the relatives to wonder if there was anything more that they themselves could do; nor as a mere matter of sentiment dare we blame them for cherishing at a sorrowful crisis what Major Lester's father, General Lester, described to the jury as a 'rational and reasonable hope' that there might be something in the 'Christian science' treatment which would lead to recovery. But the contemplation of his deathbed leads us to pass briefly in review the reasons given by the exponent of the Christian science treatment for the hope that is in Christian science treatment —an excellent and taking phrase, but surely a misnomer from beginning to end. Mrs. Grant told the jury that she gave no material remedy to alleviate the pain. Where was the treatment? Mrs. Grant told the jury that she had no experience in the treatment of peritonitis; yet she commenced her treatment directly she got the telegram and before she had seen the patient. Where was the science? Mrs. Grant, 'taking up the right thought of the omnipotence and love of God,' told the jury that she did not believe that suffering was sent by God, and she contended that Jesus Christ never sent the sick to physicians. If the agony at Calvary for man's redemption was a God-sent reality, and if the miraculous healer told the Pharisees that 'they that be whole need not a physician, but they that are sick,' where is the Christianity of the Christian scientist?

"The Christian scientist talks as if his (merely human) activities were set in motion and pervaded by an atmosphere of Divine potentialities. In an almost flattering way he, as it were, 'stands in' with God, or, as Coroner Roumieu bluntly put it at the inquest, he 'tries to usurp the special power which Christ had.' We feel it, further, to be our duty to point out that apart from evils which may result to individual members of the community from it, the Christian science treatment is neither more nor less than a fin-de-siècle fad, a drawing-room cult, and that it is the counterpart of the culpable negligence which has brought the Peculiar People of the less educated classes within the range and operation of the criminal law of the country."

It is high time that a few of these so-called "scientists" who have caused the death of innocent and confiding persons by preventing them from receiving proper medical attention, should be brought to their senses by means of a considerable term of imprisonment at hard labor.

POTASSIUM PERMANGANATE FOR THE PURIFICATION OF A WATER SUPPLY.

IN all that has been written and said about the water supply and the typhoid fever of the summer camps, we have observed no reference to the possibilities offered by the use of potassium permanganate in the purification of drinking water. Prof. Hankin, the cholera expert who is associated in the government laboratory at Agra, India, stated some months since (*British Medical Journal*, Jan. 22, 1898, p. 205), that the happiest result in checking the spread of cholera had been obtained by treating the wells with potassium permanganate.

A study of the history of cholera in India shows that no conclusion as to the validity of treatment of wells or any other method of checking cholera can be drawn from a consideration of the suddenness or otherwise with which any given outbreak has come to an end. So far as the evidence in my possession goes, the so-called typical outbreak, with its sharp rise and gradual fall, is for villages in many districts, if not in all, an exception rather than the rule, although the data for the district as a whole would furnish such a curve.

If the treatment of wells with potassium permanganate is of any use, treated outbreaks should have a shorter duration than not-treated outbreaks. It might be thought that some conclusion as to whether or not this had happened might be obtained by finding out the average duration of a cholera outbreak in villages in any district, and observing whether the durations of treated outbreaks were more or less than this average.

For instance, in the Gonda district in the summer of 1895, permanganate was put into the wells of seven cholera-stricken villages. The total population of these and of a group of non-treated villages was about the same—namely, 4,714 for the not-treated villages, and 4,601 for the treated villages. The treated villages reported 56 cases of cholera, the not-treated villages reported 123 cases. The average duration of an outbreak in the not-treated villages was about 22¼ days, and the average duration in the treated villages 14½ days, although, on the one hand, the treated villages include one in which permanganate was not used until the twenty-fifth day after the commencement of the cholera; and, on the other hand, the not-treated villages include one instance in which the outbreak only lasted two days. Here the not-treated villages form a control, and enable us to conclude with some degree of probability that the employment of permanganate in the other group of affected villages was of use.

It is unfortunate that a trial of this simple expedient was not resorted to among our troops as a means of preventing the spread of typhoid.

MORPHINISM AND MORPHINOMANIA.

IN a work on the morphine habit lately published in Paris, much interesting information concerning morphinism and morphinomania is given. It is stated that Germany, France, and the United States are the countries in which the vice is most common. Statistics are furnished of 1,000 cases collected from all parts of the world—650 men and 350 women. These statistics show that, of the males, the medical profession supplied the largest number, 40 per cent.; men of leisure come next with 15 per cent.; then merchants, 8 per cent.; peasants, clergymen and politicians occupied the lowest position on the list. Women of means constitute the most numerous class among the female morphinists, 43 per cent.; followed by wives of medical men, 10 per cent. It is said that in Germany there are entire villages whose inhabitants are addicted to the use of morphine, but the general belief that the morphine habit is more extensively practised in Paris than in any other city is contradicted. Morphinomania occurs with the greatest frequency between the ages of twenty-five and forty. The direct action that morphine exercises on the organs of generation in both sexes, producing impotence in the male and amenorrhœa in the female, is well attested.

AN important secession from the ranks of the vegetarians, has taken place, the entire Dominican Order in England having received permission from Rome to eat flesh four days a week, instead of perpetually abstaining as heretofore. In cases of ill-health or specially hard work, meat is to be allowed six days a week. This decision has been arrived at after the closest medical and official investigation of the effects of perpetual abstinence from meat in a variable climate like that of England; the result being that vegetarianism has been declared incompatible with physical strength and hard work.

ALCOHOL VERSUS ACETIC ACID.

AT the recent meeting of the New York State Medical Association, Dr. E. R. Squibb said that it might be of interest to learn of the work being done in the way of retiring alcohol as a menstruum for exhausting drugs. A good deal had been accomplished in this direction in the last two or three years. Of the other menstrua experimented with up to the present time, that which had given the best results was acetic acid in various strengths. It had been discovered that a ten-per-cent. solution of acetic acid was almost universal in its exhausting powers. There were now in use in veterinary practice and in some hospitals, extracts made with acetic acid. They were made according to the requirements of the Pharmacopœia except that acetic acid was substituted for alcohol. Acetic acid when used with alkaloids gave the physician certain advantages in prescribing, owing to there being fewer incompatibles. In small doses the percentage of acetic acid in the extract was so small as to be hardly appreciable, and when larger doses were required the acetic acid could be neutralized by the addition of potash or soda. In commenting on Dr Squibb's statements, Dr. H. D. Didama, of Syracuse, said that it did not seem to him that the use of alcohol by the profession had been abandoned, either socially or otherwise, a view of the case which so far as it applied to the legitimate use of alcohol in pharmaceutical manufacturing met with the unanimous indorsement of those participating in the discussion. This scheme of substituting acetic acid for alcohol as a menstruum has long been advocated by Dr. Squibb, but it will meet with but little favor in the medical profession.

INDEX TO VOL. LXIX.

A

Page.
Abortion—Accidental, Essential Criminal, W. D. Haggard 368-376
Animal Odors 53
Anti-Streptococcic Serum in Pathogenic Affections, Nathan Raw 92-95
Appendicitis and Pregnancy .. 99
Acute Articular Rheumatism. 111
Antiseptic and Germicide Remedies, Abuse of 117
Abdominal Cases, George Ben Johnston 133-140
Army Medical Investigation a Farce 160
Apomorphine and Its Uses, Samuel A. Visanska 175-177
Appendicitis, a Possible Cause. Wm. T. Oppenheimer 178
Asphyxia, Relieving, in the Newly-born Infant 219
Acute Gastritis and Its Treatment, W. D. Pennington .. 232-234
Alimentary Tract, Disease of. 311
Ascario Lumbricoides as a Cause of Death 315

B

Bullets in the Brain and the Roentgen Rays 18
Buttermilk 57
Book Reviews: 61, 125, 126, 191, 192, 256-258, 324
Brain Tumor 106
Breakdown of the Medical Supplies in Cuba 161-162
Beneficial Effects of One Disease as Regards Another, Harry Campbell, F.R., C.P. 210-217
Bronchitis, Treatment of 237

C

Clavicle. Improvement in Treating Fractured, J. W. Henson 1-4
Carcinoma of the Female
Caccinoma of the Female Breast, Frederick Page and Wm. H. Bishop 19-21
Carbolic Acid Poisoning, Treatment of 51-52
Columbus Prompted to Discover America by a Physician 54
Catarrhal Laryngitis. Clarence C. Rice 85-87

Page.
Creosoted Oil, Use of. After Tracheotomy, Wm. Ewart, F.R.C.P. 67-74
Climates in Cuba and Manila. 80-81
Coryza, Treatment of Acute, Clarence C. Rice 95-96
Colitis, Treatment of 114
Cerebro-Spinal Meningitis 115
Carbuncle, Treatment of, Thomas H. Manley 147-154
Climate and Malaria, Surgeon-Major R. R. H. Moore ... 167-174
Cephalalgia in Children 250-252
Children and Sleep 252
Castrates Capable of Procreation. F. R. Sturgis 285-292

D.

Digestive Ferments, New Field for Production of by Microcopical Plants, Jokichi Takamine 381-384
Diphtheria, Diagnosis and Treatment of, Jas. S. Irvin. 354-367
Dum-Dum Bullet, Evolution of the, Surgeon Maj.Gen. Hamilton 10-13
Dum-Dum Bullet, Effects of the, Surgeon Col. Stevenson, A.M.S 14-17
Direct Intra-Abdominal Finger Compression of the Common Iliac Artery During Amputation at the Hip Joint 185
Disinfection of Rooms 217
Diarrhœa of Infants, Diet in... 241
Disinfecting Rooms with Formalin 248
Defecation in Infants. Difficulties of 249

E.

Eye Affections. Treatment of 21-24
Ears, Care of, D. D. Bryant .. 384-386
Ewart, Wm., F.R.C.P., Use of Creosoted Oil after Tracheotomy 67-74
Egyptian Medical Tattooing .. 57
Ear Bitten Off and Successfully Replaced. Wm. J. Brown, L.R.C.S 179
Epilepsy. Long Remission in. and their Bearing on Prognosis 243
Empyema. Irrigation by Submission in 244

Page.

EDITORIALS:—
Enemata, Nutrient 245
Our "Leper Colony" 63-65
The Army Surgeon 65
Inhuman Bullets 66
The Medical Lessons of the War 129-132
Reorganization Needed in the Army 195-196
The Country Doctor 196-198
The Army Medical Service. 261-264
Yellow Fever and the Quarantine Question 327
The Use and Abuse of Obstetrical Forceps 328-329

F.

Foreign Bodies in the Eye. Harry L. Myers 377-380
Foreign Bodies in the Ear or Nose. R. D. Barret 88-91
Fibromyoma of the Uterus. J. Inglis Parsons 223-229
Fibroids, Treatment of, by Securing Uterine Arteries... 239

G.

Gout, Alkalinity of the Blood in. Arthur P. Luff, F.R.C.P. 35-38
Gonorrhœa, Prostatitis in.... 50
Gynæcological Examination of Women Recently Confined 56
Gonorrhœal Inflammation of Joint Tendon Sheaths.... 109
Gonorrhœa in Women, Treatment of 110
Guaiacol in Epididymites..... 120
Gout, Irregular, James S. Kennedy 154-156
Grippe, Treatment of........ 242
Gonorrhœa, Methylene Blue for the Treatment of Acute 246
Gastric and Intestinal Antiseptics 247
Gunshot Wounds, Treatment of...... 316

H.

Hygiene of Granular Conjunctivitis, Francis Dowling.. 163-166
Hamilton, Surgeon Maj-Gen., Evolution of the Dum-Dum Bullet 10-13
Hot Air Treatment of Joints.. 108-234
Hypnotics in Insomnia, Use and Abuse of........... 319
Haemoptysis, Treatment of.. 376

I.

Inguinal Hernia, Simon Duplay and Maurice Cazin.. 4-9

Page.

Intestinal Tuberculosis, Surgical Treatment of 119
Infantile Colitis 113

L.

Lee-Metford Bullets, Action of. Surgeon Maj. Thompson, I.M.S...... 13-14
Luff, Arthur P., F.R.C.P., Alkalinity of the Blood in Gout 35-38
Lycetol in Uric Acid Diathesis 314

M.

Measles, Early Symptom of.. 52
Malaria in the Tropics, and its Prevention 82-83
Malaria Cured without Quinine 112
Malarial Fever, Prof. Koch's Views on 181-184
Malarial and Cinchonic Amaurosis 184
Midwifery Forceps, Use and Abuse of, R. Milne Murray, F.R.C.P...... 199-210
Mosquito and Malaria Parasite, Patrick Manson, F.R.C.P.... 272-281
Mountain Air for Anæmia.... 308
Military Board of Sanitation, Need for a.............. 312-313
Marriages between Cousins.. 317

N.

Neuritis, Gonorrhoeal........ 388
Normal Salt Solution, Methods for Employment of....... 248
Navy Full-Diet Table........ 318

O.

Obesity, Mechanical Treatment of...... 91
Orthoform and Extract Suprarenal Glands, W. Cheatham 302-304

P.

Puerperal Sepsis, Treatment of 387
Gorrhoel Neuritis 388
Pneumonia, Salicylic Acid in. 56
Picric Acid, Dangers of, in the Treatment of Burns...... 58
Prescriptions, Favorite.....62, 128, 193, 194, 259, 260, 326
Prostatic Disease, Use of the Catheter in..... 120
Potassium Iodide in Cerebro-Spinal Meningitis, H. A. Moody..... 304-307

Page.

Phthisis, Open Air Treatment of 307

Q.

Quinine not a Specific in Malaria, James Van Martes.. 42-47

R.

Renal Calculus Detected by X-Rays...... 55

S.

Sciatica, Treatment of with Hydrochloric Acid 386
Stevenson, Surgeon Col., A.M.S., Effects of the Dum-Dum Bullet 14-17
Shell Wounds at San Juan... 17
Scarlatina 25-35
Sterilizing the Hands 84
Stimulants 84
Strychnine as a Stimulant, Abuse of 99-101
Sudden Death in Infants..... 107
Syringomyelia with Unusual Symptoms 180
Surgical Convalescence, Stuart Maguire 229-232
Sensibility of the Female Urinary and Genital Organs.. 253
Stabwound of the Thoracic Duct, W. H. Lyne........ 265-267
Skin Diseases among School Children, T. Caspar Gilchrist 281-284
Sprays and Inhalents, Seth Scott Bishop 299-301
Senile Pleurisy 310
Scarlatinal Myositis 311

T.

Tight Lacing, W. E. Fitch.... 38-42
Tetanus, Treatment of....... 50

Page.

Therapeutic Hints..58-61, 121-124, 180-190, 254, 255, 320-323
The Country Doctor, Charles M. Ellis 140-147
Tuberculosis of the Testicle.. 218
Treatment of Tuberculous Arthritis by Bloodless Methods...... 235-237
Tight Lacing and Female Diseases 240
The Heart in Normal Pregnancy 316

U.

U. S. Army Medical Department in the Field, Henry S. Greenleaf 157-160

V.

Vomiting of Pregnancy, Luther Sexton 96-99
Vegetables Influencing Gout.. 101-105
Varicose Veins, Fendelenburg's Operation for...... 116
Vomiting of Pregnancy, C. S. Bacon 219-223

W.

Whooping-Cough, Treatment of 118

Y.

Yellow Fever, Serum Treatment of 48-50
Yellow Fever, Its Diagnosis and Treatment, J. Edward Stubbert 75-80
Yellow Fever in Jamaica, Jaspar Cargill............... 268-272
Yellow Fever and the Abuses of Quarantine in 1897, Dillon J. Spotswood......... 293-298